EXAMINING THE FACTORS IMPACTING SMALL AND MEDIUM ENTERPRISES (SMEs) IN ACCESSING DEVELOPMENT DEBT FINANCE IN THE KINGDOM OF ESWATINI

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Abstract

SMEs are conduits for the transformation of economies because they act as catalysts for private sector development. However, they face several constraints to accessing finances for their growth and development. Hence, by using a secondary dataset from the Central Bank of Eswatini that comprises 1,390 loan applicants, an empirical analysis was done using a binary logistic regression analysis to assess credit rationing factors preventing SMEs in the Kingdom of Eswatini to access DFIs loans for their growth and development. Thus, the objectives of the study are to examine the relationships between credit rationing factors and their effects on accessing DFI loans in the Kingdom of Eswatini.

Descriptive analysis provided an explanation as to how these factors influence the financing of SMEs in the Kingdom of Eswatini. Pearson's correlation coefficient was, therefore, employed to determine the relationships between credit rationing factors and binary logistic regression analysis to examine the effect of these factors on DFIs loans accessibility. This method was used to determine the strength of the relationship between loan access and credit rationing factors.

The findings show that the age of SMEs and loan amounts are some of the major negative factors impacting access to DFIs loans in the Kingdom of Eswatini. A mature SME is less constrained to access DFIs loan compared to start-ups and growing SMEs. Furthermore, SMEs that apply for sustainable loans are less constrained to access DFIs loans than those that apply for unsustainable and very high amounts.

It is, therefore, concluded that DFIs in the Kingdom of Eswatini apply credit rationing in dispersing loans to SMEs. DFIs should link their loan amount to demands and to the period of existence, as only well established and matured SMEs have an added advantage in accessing DFIs loans. For these reasons, it is recommended that economic policy makers should devise loan access policies that suit start-ups and growing SME for their conducive development and growth. This policy is vital because SMEs have a pivotal role to play in the overall economic growth of the Kingdom of Eswatini.

Key words: SMEs, Loans, Central Bank of Eswatini, DFIs and the Kingdom of Eswatini

Table of Contents

List of Figures

List of Tables

List of Acronyms and Abbreviations

AGOA	African Growth and Opportunity Act
ADB	African Development Bank
CBE	Central Bank of Eswatini
DFU	Financial Development Unit
DFI	Development Finance Institutions
EU	European Union
ESEPARC	Eswatini Economic Policy Analysis and Research Centre
FIs	Financial Institutions
FINCORP	Eswatini Development Finance Cooperation
HDI	Human Development Index
KoE	Kingdom of Eswatini
LAS	Loan Apllication Status
LAMOUNT	Loan Amount
MFI	Microfinance Institutions
OECD	Organization for Economic Coorporation and Development
RSA	Republic of South Africa
SACU	Southern Africa Customs Union
EDSB	Eswatini Development and Savings Bank
SDG	Sustainable Development Goal
EIDC	Eswatini Industrial Development Bank
SME	Small and Medium Enterprises
SSA	Sub-Saharan Africa
UNDP	United Nationa Development Programme
UNGA	United Nations General Assembly
VIF	Variance Inflation Factor
WEF	World Economic Forum

CHAPTER ONE

INTRODUCTION

This chapter presents a background to this study. It provides a basis for understanding the subsequent chapters of this report. It begins with a background to the key issues the study contends with. It presents the research objectives, research questions and significance of the study, which together underscore the purpose for carrying out this study. The scope of the study and the limitations of the study are discussed in the latter part of this chapter to put the study in perspective. The chapter then ends with a preview of the structure of the remaining segment of this report.

1.1 Background and Context of the Study

Sannajust, A. (2014) observed that Small and Medium Enterprises (SMEs) play a vital role in an economy. The researcher noted that SMEs are conduits for the transformation or transitioning of economies because they act as catalysts for private sector development and they play a crucial role as innovators. The recognition of these key roles played by SMEs has also been increasingly acknowledged by public policy makers and a range of initiatives, policies and policy frameworks at both the national and supranational levels. These various initiatives have been developed in order to support, promote and grow the SME sector. In the World Bank's report on SMEs of 2017 on what is happening to the Missing Middle, the authors remarked on how following the dislocation of the 2008/2009 global financial crisis, policy makers worldwide including the European Union (EU), the G20, Organization for Economic Coorporation and Development (OECD) and the World Economic Forum (WEF) focused their increasing attention on strengthening the SME sector in order to build greater economic resilience worldwide (United Nations, 2017).

Among these initiatives in 2010, the G20 launched its "SME Finance Challenge," and published its policy paper on "Scaling-Up SME Access to Financial Services in the Developing World". The World Bank's Finance and Markets Global Practice developed its "SME Action Plan". In 2017, the United Nations General Assembly (UNGA), recognising the importance of these enterprises, decided to declare 27 June the "Micro, Small and Medium-sized Enterprises Day" to raise public awareness on their contribution to sustainable development, (United Nations, 2017). Development Finance Institutions (DFIs) are ready to

support the growth and expansion of the SMEs, but most SMEs fail to meet the criteria that would qualify them for dedicated funding from a number of Financial Institutions (FIs) and DFIs (Mutezo, 2015).

The Kingdom of Eswatini (KoE) has equally not been spared from the challenges associated with access to finance by SMEs (Sithole, 2018). The KoE is a land-locked country covering an area of approximately 17,360 km². The population of the KoE is estimated at around 1.4 million as of 2019 and is classified as a low-middle income country and has a Gross Domestic Product (GDP), at market prices, of US $3.43 billion, (FINCORP, 2017). Mostly surrounded by Republic of South Africa (RSA), the KoE depends on the RSA for about 60 percent of its exports and for more than 90 percent of its imports. According to Dlamini (2018), the Kingdom's currency is pegged at par to the South African Rand, effectively relinquishes the KoE's monetary policy to the RSA. The KoE Government is heavily dependent on customs duties from the Southern African Customs Union (SACU) and worker remittances from RSA to supplement domestically earned income (African Development Bank, 2013).

The real GDP growth slowed from 2.5 per cent in 2014 to 1.7 per cent in 2015. The main reason for this was argued to be the drought that the country experienced in The KoE and a very poor performance in key export destinations, notably RSA (Hwarire, 2012). This was compounded by the country's loss of eligibility to the privileges that flow from the African Growth and Opportunity Act (AGOA) in January 2015. The KoE's GDP per capita makes it a lower-middle income country, but its income distribution is highly skewed, with an estimated 20 percent of the population controlling 80 percent of the nation's wealth (Dlamini, 2018). Despite its classification as a low middle-income country, the incidence of poverty is high, with an estimated 63 percent of the population living below the poverty line, according to African Development Bank (ADB) 2013 report. These challenges highlight the need for The KoE to increase the number and size of SME's and to attract foreign direct investment to help address social challenges and improve the quality of life for the population of Eswatini, (ADB, 2013).

After losing its benefits under AGOA, The KoE lost thousands of jobs which further worsened the untenable high unemployment rate, (FINCORP, 2017). The country has a low Human Development Index (HDI). This is a composite statistic of life expectancy, education and per capita income indicators used to rank countries into four tiers of human development. In 2018

The KoE was ranked 138 on this index, according to 2018 United Nations Human Development Programme (UNDP) Report. The KoE's HDI score of 0.608was mainly due to the high mortality rate, underdeveloped labour markets and mistrust of national government (UNDP, 2019).

With rapidly increasing urbanisation, access to sanitation, electricity and waste management services are becoming a major challenge to municipal authorities (Alibhai *et al.*, 2017). To address these challenges, the government has committed to prioritising urban development through initiatives such as the urban development programme (IFC, 2010). The urban development programme is aimed at increasing urban management efficiency and improving living conditions of low-income urban households by providing basic services and housing (Adisa *et al*., 2014). The programme includes the rehabilitation and expansion of city roads, development of new solid waste sites, provision of solid waste equipment and relocation of 15 kilometres of power lines. Furthermore, the programme provides rehabilitation and expansion of water and sewerage services, including refurbishing existing and constructing new sewage treatment and water supply facilities. It also involves a water loss reduction programme and residential housing sites, including on-site infrastructure for 5,000 upgraded as well as in-fill housing sites (Sithole, 2017).

Improved infrastructure resulting from this programme will be beneficial to SMEs and improved infrastructure creates opportunities for SMEs whose expanded products and services would be sold to government (OECD, 2015). Eswatini's economic growth, according to the Central Bank's annual report, is projected to be low because of the slowdown in economic activity in the primary and the tertiary sectors. Agricultural activities were negatively affected by the drought (2015 – 2016), while the mining sector experienced poor performance in 2016 owing to unfavourable international prices. These unfavourable developments prompted a rethink and change in focus for countries like Eswatini. It became necessary to reduce the country's heavy reliance on the volatile agricultural sector and venture into industrialisation in order to minimise commodity price fluctuations risk, stabilise revenues for firms, increase employment and reduce the trade deficit (Sithole, 2017).

This quest to change focus recognised SMEs as very important stakeholders in the new economic development agenda for job creation and economic growth (Dlamini, 2018). Most SMEs operate in the tourism sector, but the recent South African immigration regulations

requiring travellers with minors to submit unabridged birth certificates has greatly affected the SMEs in this sector (Nzonde, 2018). Another development that impacted the Eswatini economy, particularly the textile and apparel industry, is the termination of Eswatini's benefits under AGOA, which significantly reduced business activity in this sector (Sithole, 2017). This has also affected foreign direct investments in the sector. Even though there have been some good prospects in the construction sector due to public sector projects such as the International Convention Centre and many road infrastructure construction projects, SMEs hardly operate in this sector because of the smallness of their sizes and consequent e capital constraint (Sithole, 2017).

According to the Eswatini Economic Policy Analysis and Research Centre (ESEPARC) (2019), during their presentation at a public lecture on *"SMEs and Industrialisation: Materialising SDGs 8 & 9 in Eswatini",* if adequate and satisfactory finance is availed to SMEs, then SMEs in the KoE are ready to play a vital role in promoting growth to the Eswatini economy. OECD (2015) stated that SMEs are the engine that drives most economies; however, for the SMEs to play this vital role, FDIs providing financial support to the SMEs need to understand the challenges that the SMEs are facing. In the case of Eswatini, the ESEPARC Research Economist stated that one of the major challenges faced by SMEs in Eswatini is that of funding gaps (Mohammed, 2019). OECD (2015) noted that SMEs ventures are acting as barriers to the growth and development of the SME sector resulting in the sector being unable to contribute effectively to economic growth. Understanding these challenges is, therefore, a key step towards seeking solutions, which, when found and properly applied, would allow the SMEs to overcome the challenges and play their expected crucial roles in economic development.

SMEs must be developed to take their rightful place as the 'engine of growth' of the economy of Eswatini. This means enabling them to understand and circumvent the obstacles that limit their operations. The literature identifies a 'capital deficiency gap' as the most formidable and conspicuous of the challenges SMEs face, ahead of entrepreneur expertise, and other obstacles (Sithole, 2017).

1.2 Statement of the Research Problem

Eswatini SMEs have a very crucial role to play in the country's economic growth and development; UN Report, 2017; Dlamini, 2018). This is because the nature of the economic

structure of Eswatini and sources of revenue reveal a vulnerability gap which only Swazi entrepreneurs can fill in order to take charge of the commanding heights of the economy.

The economy of Eswatini is heavily reliant on the agriculture and agro-industry (sugar, citrus and wood pulp). In addition, revenue from the common SACU revenue pool has been the major source of central government revenue. The agricultural sector, because of its heavy dependence on the weather, has, however, proved to be incapable of giving the stable financial foundation on which an economy can reliably stand; the same applies to revenue from the common SACU pool (Sithole, 2018).

Eswatini's plausible option of an economic livewire is the SME sector. This is because, firstly, the market for industrial goods is too small to support viable manufacturing industries. Secondly, SMEs employ over 50 per cent of the population and, according to the literature, demonstrated a high degree of resilience during the depression of the 1990s. Studies by international organisations have attested to the ability of the SMEs to promote growth in developing economies if proper nurturing is undertaken in terms of appropriate policy coupled with sound technical and financing services (Sannajust, A. (2014); UN Report, 2017; Dlamini, 2018).

The literature indicates that Eswatini government has, as far back as 1990, initiated interventions aimed at helping SMEs to overcome the marked challenges plaguing them (ESEPARC, 2019). However, studies recently carried out show that capital still remains a constraint and access to FI lending is as difficult as ever (Dlamini, 2018). The Financial Development Unit (DFU) of the Central Bank of Eswatini (CBE) has not been able to extend the initiatives to cover rural areas and informal sectors (Dlamini, 2018).

An ADB (2013) report indicated that SME lending in Eswatini is being incapacitated by unfavourable SMEs' operating environment and ineffectiveness of the interventions (ADB, 2013). Currently, Dlamini (2018) did not only list a number of problems still limiting effective SMEs operations in Eswatini, but also highlighted the fact that funding of SMEs in Eswatini is not sustainable. This is despite the efforts of SME funding institution like FINCORP to instill the culture of responsible borrowers' behavior among SMEs for a considerable number of years.

The above shows SMEs in Eswatini have a funding gap with a deficiency in financing for good SMEs who otherwise deserve credit at the start-up stage and beyond (Mutezo, 2015).

OECD (2016) stated that SMEs with such a funding gap also tend to be under-capitalised and opaque resulting in most of them being unable to grow and self-sustain, thereby hindering them from contributing effectively to economic growth.

Due to the problems of accessing bank credit, a large proportion of Eswatini SMEs rely more on self-financing in the form of personal savings, loans/donations from family and friends as well as retained earnings. According to Dlamini (2018), these forms of financing are not adequate to finance SMEs and for their growth. The implication, therefore, is that SMEs do not always have adequate credit to meet their financial needs at different levels of growth.

Studies done on SMEs financing in Eswatini include but not limited to those done by Fadiran (2005), Hlatshwako (2012), Dlamini (2017), and Dlamini and Mohammed (2018). These studies focused on descriptive analysis with no real modelling that takes into account the nature of variables used. Fadiran (2005) analysed the effects of financial assistance on SMEs in the KoE. Hlatshwako (2012) analysed challenges that hinder SMEs growth and attain their maximum performance. Dlamini (2017) focused on analysing social entrepreneurship in the financial sector to determine its contribution and performance, and the extent to which it is robust as a sustainable model for attaining financial inclusion. Another study on SME financing was done by Dlamini and Mohammed (2018), which focused on identifying the factors that influence choice of credit sources by SMEs in the agriculture sector. In addition to all the studies on SMEs in the KOE, this study goes beyond descriptive analysis by incorporating inferential analysis that considers the nature of the relationships of variables through application of Binary Logistics Regression Analysis. This is so as most of the variables used are categorical including the dependent variable that might not be linearly related.

As stated above by Sithole (2018), Dlamini (2018) and ESERPAC (2019), SME in Eswatini are unable to access DFI lending and this has stifled their growth. This study is thus prompted by the need to investigate why SMEs in Eswatini are not able to access finance from DFIs resulting in the persistence of the ‘funding deficiency gap’ crippling Eswatini SMEs.

1.3 Research Objective

It is an undeniable fact that SMEs foster economic development and growth of a country, such that the KoE introduced several initiatives including financial services to help SMEs attain their potential. The main objective of this research was to empirically examine the

relationships between credit rationing factors and their effects on accessing DFI loans in the KoE.

1.4 Research Question

To achieve the above objective, the following research question was addressed by this study:

- How do credit-rationing factors such as collateral, interest rates, location, age of SMEs, loan term, gender of SME owner and loan amounts influence SMEs' access to DFI loans in Eswatini?

1.5 Research Hypotheses

This study investigated factors that affect SMEs' access to DFI loans in Eswatini by concentrating on credit supply related characteristics which were deemed to be more relevant in explaining the credit rationing behaviour of DFIs. These factors include loan amount request, age of SME, location, gender of SME owner, loan term, collateral offered and interest rate. Therefore, the research question was translated into the following null hypotheses based on the literature.

H_1: Collateral does not affect SMEs access to DFI services in Eswatini

H_2: Interest rate does not affect SMEs access to DFI services in Eswatini

H_3: Loan amount does not affect SMEs access to DFI services in Eswatini

H_4: Age of SMEs does not affect SMEs access to DFI services in Eswatini

H_5: Location of SMEs does not affect SMEs access to DFI services in Eswatini

H6: Gender of SME owner does not affect SMEs access to DFI services in Eswatini

H7: Loan term does not affect SMEs access to DFI services in Eswatini

1.6 Significance of the Study

The role of credit rationing theory in the banking sector has been a subject of intense discussion mainly in the context of the recent global crisis (OECD, 2012) during which bank lending is reduced and credit sources tend to dry up more rapidly for small firms than larger ones (ECD, 2013a). This study is of significance to the different groups of people:

1. *Academia and researchers – the methodological approach*

The results of the study addressed a literature gap resulting from limited research and methodology in the study area with regards to Eswatini; and therefore, it is of valuable assistance to those in academia. The findings of the study will also contribute to the body of knowledge in the subject area of SME-lending in the KoE, with focus on credit rationing. The

research findings and analysis are of great significance to those who wish to do further research on this topic especially exploration of other additional variables that affect loan access. This research is also expected to add to the existing literature on debt financing and SME profitability.

2. *SME Financing Policy formulation and development – The Government*

Policy makers need adequate, relevant and reliable information to formulate effective policies. The findings of the study inform policy makers in areas that need to be addressed, especially formulation of inclusive and participatory policies that involve all stakeholders in both SMEs and DFIs. The current policies in the banking sector are more political, with more of directives than considering DFIs views that will enhance SMEs' access to DFI lending in the Kingdom of Eswatini.

1.7 Scope of the study

The study focused on the factors affecting SMEs' access to lending from DFIs for the KoE in its entirety. The primary analysis unit of this study are SMEs in the four regions of Eswatini (namely Lubombo, Shiselweni, Manzini and Hhohho regions). The CBE and DFIs operations in Eswatini cover all the four regions of the KoE. These entities are involved in SME financing as DFIs provide the financing to SMEs while the Central Banks sets up the regulatory environment for SME and has a Unit which is in charge of SME financing. It is imperative to note that there are various factors that affect SMEs' access to lending ranging from individual demographic characteristics to firm characteristics. This study is, however, limited to selected SME characteristics, namely loan size/loan amount, collateral on loan, interest rates, location, age of SME, gender of SME owner, and loan term. These factors were selected as they were viewed by Mutezo (2015) to be the barriers which cause the SME funding gap.

1.8 Limitations of the Study

The first challenge which was encountered in the conduct of this research was accessing the DFIs to collect data. DFIs have policies that govern the release of client information that is deemed to be confidential. During the conduct of this study, confidentiality policies of DFIs was a barrier to successfully obtaining adequate information relevant to this study. According to Sanders *et al.*, (2013), accessibility challenges on data collection may impact on the credibility of research findings. This accessibility challenge was overcome by establishing reliance on secondary data which was collected from the DFIs. Another challenge that may affect the results of the study was the missing of some important variables from the dataset

such as educational level of the applicant, marital status, household size, type of SME (agro-sector, manufacturing, and service), and credit history. These variables should be included in a future research. The study was also faced with financial and time resource constraints, hence the use of secondary dataset obtained from the CBE that contained almost all information about loan applicants (SMEs) in the KoE

1.9 Organisation of the study

The dissertation is organised into five main chapters. Chapter One gives an overview of the background and context of the study. This covers the problem statement, the main objective of the study, the specific objectives of the study, the research questions, the significance of the study, and finally, the limitation of the study. Chapter Two examines the relevant literature concerning the study. This comprises the theoretical literature, the conceptual frameworks and the empirical literature on SMEs access to lending among financial institutions in the Kingdom of Eswatini. Chapter Three presents the methodology of the study, as well as other methods of analysis, covering the research design, the target population of the study, the statistical analysis tools that led to the conclusions and recommendations. Chapter Four focuses on the results and discusses the findings of the study with respect to secondary dataset. The chapter presents the summarised results presented using tables and graphs. The chapter also discusses the findings of the study relative to the empirical literature. Chapter Five draws conclusions based on the collected and analysed data, and finally makes recommendations for future studies.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of literature in the area of study. This is done to provide an update of the current state of knowledge in the area of study, to place the study in context and to identify and define the theoretical framework for the study. This chapter first reviews the credit rationing theory for the study. Secondly, the definition of SMEs is discussed, and the characteristics of the SMEs and the entrepreneur are reviewed. Thirdly the constraints faced by SMEs in accessing credit, and finally, the strategies that can be adopted to enhance ease of access to lending by SMEs are reviewed.

2.1 Theoretical framework

2.1.1 The credit rationing concept

Credit rationing is defined by Jote (2018) as the steps that are put in place by lenders in order to restrict, limit or deny credit to borrowers on the basis of their creditworthiness. In the same vein, Sylvester *et al.* (2013) also viewed credit rationing as the act by lenders of placing limits on the supply of additional credit to those who seek funds even if the borrowers are willing and committed to paying high rates of interest on the loans.

From the above, credit rationing refers to a scenario where the demand for credit exceeds supply in the market equilibrium, which is termed as market failure. This market failure occurs when financial institutions, as a result of imperfect information within the credit market, are unable to identify perfectly *ex-ante* their client's profile and cannot correctly fix the interest rate with regard to risk resulting in lenders taking measures to reduce the exposure to credit risk (Jote, 2018).

According to Adesuwa (2016), credit rationing takes place once the expected rate of return does not increase monotonously with the interest rate. Two reasons make the relationship non-monotonous: a rise in the credit cost that can discourage the least risky borrowers because their returns, in case of successful projects, are below those of riskier borrowers, and thus will decrease the lenders' average return (adverse selection). In the same way, an increase in the credit cost can lead to the selection of the riskiest projects of an entrepreneur (moral hazard).

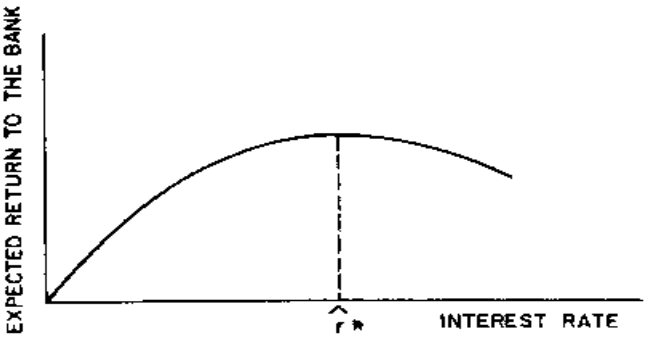
Since SMEs rely heavily on DFI debt finance, this restricted access has a negative effect on the investment in new profitable projects and their growth (Jote, 2018).

2.1.2 The credit rationing theory

The credit rationing theory finds its roots from Jaffee and Modigliani (1969) and Stiglitz and Weiss (1981) and has subsequently been revised and reinforced within the finance discipline. Within the premise of credit rationing, accessing finance is restricted and curtailed by the existence of information asymmetry challenges between the providers of funds (lenders) and those seeking for funds (borrowers), resulting in market failure in the provision of funds to SMEs (Ghimire and Abo, 2013; Huang, *et al.*, 2014). As a result of this market failure, a situation arises where demand for bank credit becomes excess as compared to its supply causing this imperfection in the market (Stiglitz and Weiss, 1981). In the context of SMEs in Eswatini, the credit rationing is the cause of the financing gap among SMEs, which is depicted by the discrepancy which is existent between the demand for credit and credit supply by DFIs (Mazanai and Fatoki, 2012).

Stiglitz and Weiss (1981) considered a risk neutral bank facing a competitive market for loans and deposits. They assumed the bank wishes to maximise its profits by deciding on loan amounts to extend at the prevailing interest rate for loans and deposits respectively. It is also assumed that the prospects of default become higher when interest rates on loans are increased. In addition, an assumption is made that up to a certain level of interest rates, the prospects of defaulting by borrowers increases less than proportionally as the interest rates are increased. Beyond that particular level the probability of default increases more than proportionally as interest rate increases (Luci, n.d). The bank's expected return with these assumptions is shown in Figure 2.1.

Figure 1: Expected return with respect to interest rate



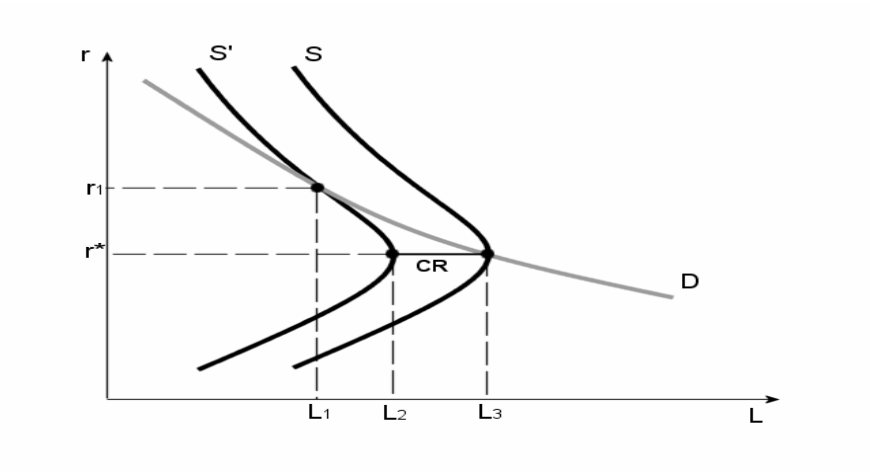
Source: Stiglitz & Weiss (1981)

Figure 1 plots the expected returns of the bank against interest rates. The bank's expected return is not a monotonic function of interest rate (Luci, n.d). At a certain point r* the bank's expected return will eventually begin to decrease with any further increases in the rates of interest. Stiglitz and Weiss (1981) describe this region as the interior bank optimal rate of interest.

DFIs tend not to lend to borrowers who offer to pay a higher interest rate in excess of r*. A bank's judgement based on the thought that such types of loans may be more riskier as compared to average loans at the interest rate r*. Therefore, if the expected return for a loan issued at an interest rate above r* is below the return that is expected on loans which the financial institituition will be earning. A situation will prevail where there will be the absence of competitive forces to lead to supply to equaling and equating to demand, hence credit will be rationed (Carbo-Valverde *et al.*, 2015).

The supply curve of loan finance has a positive slope as expected returns increase with the increase of interest rates. The slope turns negative when the expected returns start decreasing. This is shown by a backward bending supply curve (Luci, n.d) in Figure 2.

Figure 2: Pure (Type 1) Credit Rationing



Source: Luci, (n.d)

If the demand, D, and the supply for loans, *S*, intersect at or above the bending point of the supply curve there is a normal equilibrium where demand equals supply. If supply shifts to *S'* and the intersection occurs at *'a'* above the bending point the bank may not have incentive to achieve the new equilibrium because beyond the bending point its expected returns decrease. The bank stays at r* even if an excess demand exist (Luci, n.d). According to Stiglitz and Weiss (1981), two reasons explain the non-monotonic nexus between the expected return and the rate of interest, adverse selection effects and adverse incentive (moral hazard) effects (Luci, n.d).

2.1.3 The adverse selection effect

Adverse selection effect is a result of the failure of interest rate to act as a screening device. Carbo-Valverde, *et al*., (2015) argue that borrowers who choose relatively safer projects generally have a lower threshold for interest rate, beyond which they will not apply for a loan. There is also a group of borrowers who choose riskier projects, given the expected rate of return, and these have a higher threshold of interest rate. With increasing interest rates, borrowers with safe projects drop out of the market, leaving borrowers with risky projects. This is a case of adverse selection. At this point applicants who are keen to foot higher rates of interest on loans will be viewed as being riskier. This lowers the expected value of the loan on the side of the financial institution (Luci, n.d).

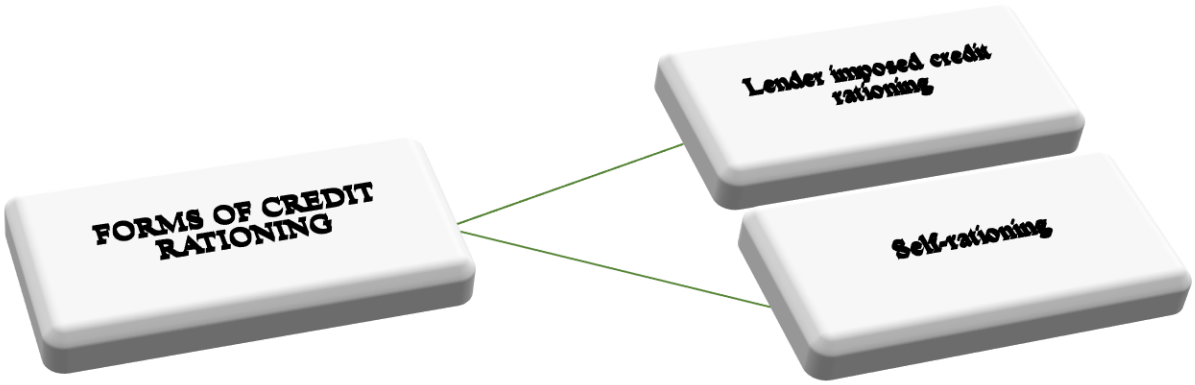
2.1.4 The adverse incentive (moral hazard) effect

The moral hazard effect is largely due to the incentive role of the rate of interest. Stiglitz and Weiss (1981) opined that increases in the rates of interest has an effect of shifting the choices of those seeking funds (both existing and new ones) towards much riskier projects. These projects tend to have a negative effect of reducing the lender's expected return.

2.2 Forms of credit rationing

Across the body of literature two (2) overall forms of rationing are identified by Berger and Udell (1995); Han, *et al*, (2009); Ghimire and Abo (2013); Mutezo (2015); Carbo-Valverde *et al.* (2015), that can be broadly classified as 1) lender imposed credit rationing and 2) self-credit rationing as shown in Figure 3.

Figure 3: Forms of Credit Rationing



Source: Adapted from Mutezo (2015)

2.2.1 Lender imposed credit rationing

Lender imposed credit rationing represents a scenario where lenders are unwilling to advance credit to borrowers who demand funds and SME businesses face the likelihood of being rationed as they are viewed by lenders to be riskier than larger business entities (Carbo-Valverde *et al*., 2015). Mutezo (2015) attributed this credit rationing to "information asymmetry" as lenders find it difficult to reliably determine their credit worthiness, therefore SME businesses are more vulnerable to be credit rationing than larger business enterprises.

Furthermore, according to Ghimire and Abo (2013), the bank's credit rationing decision is driven to a larger extent by firm specific factors like (the firm's business experience, the firm's turnover and the earnings of the firm) and loan characteristics like the amount being sought

by the applicant, the term of the loan, collateral levels required for the loan and the rate of interest on the loan. FIs have formal procedures which they follow and adhere to when SMEs apply for loan and these procedures include screening the SMEs, evaluation of the credit worthiness of the SME business and determining the quantity limits for a loan (Ghimire and Abo, 2013). During the screening phase/stage, the loan applicant is interviewed by FIs to determine their credit worthiness (in this case the SME businesses). The relevant officer of FIs who is in charge of this process, will assess the viability of the applicant's business, the credit history of the applicant, the management team for the venture and the available collateral among other issues. During the loan quantification stage, the lender will determine and fix the optimal loan amount for the applicant based on the information evaluated in the screening stage (in most cases the amount pegged by the lender tends to be less than the amount expected by the applicant) and also put in place a loan repayment period in the loan contract with reduces the bank's overall credit risk.

2.2.2 Self-imposed credit rationing

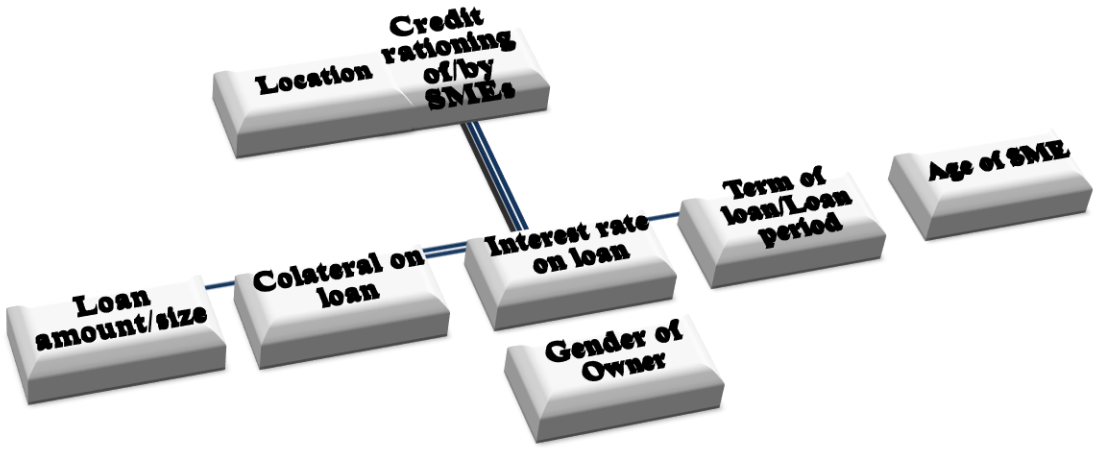
Self-imposed credit rationing was identified by Han *et al.* (2009), who identified what was termed as "self rationing", and Berger and Udell (1992) who stated that the entities that experience credit rationing are mostly small which are still at infancy levels and mostly owened by a person who originally founded them. On that preposition, Han *et al.* (2009) opined that "self-rationing" is the likelihood of a borrower deciding not to apply for a loan out of the fear that the loan request will be rejected by the potential lenders due to their riskiness levels. Similarly as in the lender imposed rationing scenario, Ghimire and Abo (2013) posited that an individual's decision to self-ration and not borrow is attributed by factors like (the firm's business experience, the firm's turnover and the earnings of the firm) and loan characteristics like (the amount being sought by the applicant, the term of the loan, collateral levels required for the loan and the rate of interest on the loan). In this scenario, individuals self-evaluate their SME businesses and due to self-discouragement, tend not to apply for credit from financial institutions hence limiting or rationing the access to credit.

2.2.3 Basis for credit rationing

Mutezo (2015) stated that with "information asymmetry", challenges are encountered by lenders in reliably identifying credit worthy and non-credit worthy loan applicants and hence SME businesses have a higher likelihood of being rationed when compared with larger and more established firms. Furthermore, the bank's credit rationing decision is influenced by firm

characteristics, like the firm's business experience, the firm's turnover and the earnings of the firm, and loan characteristics like the amount being sought by the applicant, the term of the loan, collateral levels required for the loan and the rate of interest on the loan. This study focuses on aforementioned loan characteristics but added some to enhance and ascertain their influence on loan application outcome, namely loan amount demanded, age of SME, location, gender of the owner, loan term, collateral offered and interest rate, which are also depicted in Figure 4.

Figure 4: Loan characteristics which trigger SME credit rationing



Source: Adapted from Mutezo (2015), Fatoki & Asah (2011), Lee and Brown (2016)

2.3 Critique of the credit rationing theory

A number of researchers have critiqued the credit rationing theory and its validity. Findings from studies by Arnold and Riley (2009), Su (2010), Mwangi (2012), Beutler and Grobéty (2013) found no statistically significant evidence from their research that provide evidence of validity of credit rationing. Gou and Huang (2014) noted that a firm that fails to access credit from a certain FIhas an option of applying for credit from another FIand ultimately, the firm may eventually obtain credit from other lenders.

Another point to note is that the "adverse selection model" by Stiglitz and Weiss (1981) is premised on the ex-ante asymetric information notion; however, there are other models in the

world of finance that assume symetric ex-ante. They place emphasis on explaining how the ex-post agency problems that result from a specific borrowing-lending relationship influence credit rationing (Su, 2010). Widya-Hasuti *et al.* (2018) cited costly verification. Halme and Korpela (2014) focused on money diversion, Sylvester, *et al.*, (2013) cited hidden effort, and Haile (2015) highlighted limited enforcement. Nawai and Shariff (2013) showed how poor collateral is a binding constraint in finance. A possibility exists to test the significance of "random rationing by examining whether the credit rationed borrowers are still rationed if they are willing to pledge more collateral, to reduce the loan amount and to add restrictive covenants" (Su, 2010).

In conclusion, this theory has been criticized due to its underlying assumption which states that those who lend funds have no adequate information on some of the applicant's characteristics. The close-knit character of multiple SMEs business implies that providers of finance have adequate knowledge and information on the characteristics of borrowers (Haile, 2015) resulting in SME being unable to access lending from DFIs and thus being "credit rationed by some. This is widely adopted by lending institutions in the application of credit among applicants. For the same reason, this study adopted this theory as it is the one being followed by Eswatini DFIs.

2.4 The Empirical Literature

DFIs operate between public aid and private investment and according to Griffith and Smith (2012) they provide finance to the private sector for investments that promote development. The role of the DFIs worldwide, including the KoE, is made more important by the requirement that public authorities should fulfill their responsibilities by ensuring that taxpayers' money is used for socially desirable projects, which are in line with the development strategies and industrial policies of a country. The funding by DFIs (scarce public resources) should be genuinely additional to private finance. The use of DFI funding should lead to the best possible development outcomes, such as increasing job opportunities and alleviating poverty (Kwakkenbos and Romero, 2013). Since DFIs are protected by public liability and guarantee and are driven by their development mandate, they are supposed to invest in projects or areas with higher risk and higher social return. Kwakkenbos and Romero (2013) maintained that DFIs and other aid agencies justify their investment in the private sector by cooperating with the private sector, so that they can leverage significantly more finance into their projects than development institutions could do on their own.

DFIs exist to provide finance to financial institutions that provide long-term capital and know-how to local small and medium sized businesses, private sector intermediaries which invest in underlying private enterprises involved in development projects, and directly to underlying private enterprises (Te Velde and Warner, 2007). According to Griffiths and Smith (2012), DFIs act in cooperation with government to provide management consultancy and technical assistance in general and to specific projects. At the same time, they aim to promote best practices in business, governance and environmental standards in the companies in which they invest. Since the private sector is associated with economic growth through the creation of jobs, profits and other benefits to society, the general purpose of DFIs becomes that of closing the gap in the financial market, as they invest in areas where commercial investors would normally not in order to play a developmental role. On a larger scale, DFIs aim to invest on a sustainable basis by providing the means for developing countries to invest in projects that encourage socio-economic development in a way that reduces dependency on aid (Fink, 2004). Another important role DFIs play is acting as a catalyst to attract and mobilise the involvement of other private investors. The success of DFIs in this area is measured by the rate at which they are ultimately crowded out of an investment area by private investors (Te Velde and Warner, 2007). Access to external finance and the ability to undertake profitable investment opportunities are important ingredients for success of any new business and ultimately for economic growth and development (Chavis, Kapper and Love, 2011).

The KoE operates with three important DFIs: The Eswatini Development Finance Corporation (FINCORP), Eswatini Industrial Development Company (EIDC), and the Eswatini Development and Savings Bank (EDSB). Each of these institutions operates with a different management structure, market philosophy, and client focus. SME businesses globally including the KoE face a multiplicity of challenges in conducting business as compared to large enterprises due to the difficulties they encounter in their effort to access finance to start up and to grow. The IFC (2010), posited that small businesses tend to encounter more challenges as compared to medium-sized firms while on the other hand, medium-sized business enterprises tend to face same challenges compared to larger firms. In developing countries, lenders have been seen to be restricting the supply of credit to small businesses and entrepreneurial ventures due to their riskiness attributed to their “small portfolios” and “high transaction cost”.

OECD (2018) posited that high transaction costs contribute to the inability by SME business to access debt from financial institutions. OECD (2018) is of the opinion that "if transaction cost of lending is high then the net margin DFIs expect from loans operation do not compare favourably against safe investment represented by treasury bonds". The OECD (2017) echoed the same view, that if lender are faced with information asymmetry, they tend to be defensive by opting to reduce credit supply in an effort to reduce credit risk and preventing default risk. Such actions according to OECD (2017) have a push-up effect on transaction cost as the likelihood of default by SMEs becomes higher resulting in lenders resorting to credit rationing behaviour to reduce their credit risk exposure. Lenders may therefore resort to avoiding lending funds to SMEs or may resort to increasing collateral requirements for SME businesses thereby creating barriers to access to finance to small start-up businesses and entrepreneurs. The following sections discuss factors that determine credit rationing to SMEs worldwide including Eswatini.

2.4.1 Collateral and credit rationing

Collateral, as an extra form of security, can be pledged against credit by a loan applicant (in this case the SME) to the lender (the DFIs) as assurance for the loan or rather as a second source of loan repayment in case of repayment violation. Normally assets such as plant, machinery, land, buildings, accounts receivable, and (in some cases) stock (finished or work in progress) are considered as possible sources of collateral that the lender can sell to recover the amount borrowed to the SME business in the event that the borrower fails to pay the loan as per the loan agreement (OECD, 2014).

Carbo-Valverde *et al*. (2015) argued that just as with interest rates, collateral may also fail to act as a sorting and incentive device. They argued that increasing collateral may shift the composition of borrowers towards those with riskier projects or encourage borrowers to choose riskier projects. Their argument is based on two propositions.

Reduced borrower equity

A higher collateral required by the bank will reduce the borrower's equity that could be invested in the project, this may force the applicant to select smaller projects. Assuming the case that smaller projects have a higher failure probability, increasing collateral could potentially lead to a riskier pool of borrowers with riskier projects (Luci, n.d).

Decreasing absolute risk aversion

Carbo-Valverde *et al.* (2015) further argued that the degree of aversion torward risk of individuals could decrease as they become wealthier. Increasing collateral will increase the relative portion of wealthier but riskier borrowers compared to less wealthy and risk averse borrowers who cannot afford higher collateral and hence drop out of the market. Increasing collateral could lead to a riskier pool of borrowers. The adverse selection effects could be sufficiently strong to cancel out the positive effect that the increase of collateral could have on the bank's expected profit.

In theory, need for collateral requirements in lending agreements is viewed as a mitigating strategy or a solution to addressing information asymmetry problems which are viewed to be the source of credit rationing and also, if a borrower offers collateral for a loan, this offer of collateral is a signalling factor by the borrower to address information asymmetry problems (Cerqueiro *et al.,* 2016; Cole and Sokolyk, 2016; Kirschenmann, 2016). In the same vein, Mutezo (2015) posited that the availing of collateral by the borrower should reduce credit rationing by lenders. Nkuah *et al.* (2013) also posited that collateral requirements pose a limit to the borrower from pursuing very risky ventures and hence addresses the moral hazard problem. The same view was shared by Carbo-Valverde *et al*., (2015), who stated that the offering of collateral by a borrower in form of pledged assets makes the borrower more likely to manage the loan amount responsibly to protect the pledged assets and this reduces the credit risk levels of borrowers.

It can therefore be concluded that collateral has a positive effect of reducing adverse selection, and should be capable of ultimately mitigating credit rationing. Also, it can be concluded that collateral requirements are capable of preventing moral hazard problems, thereby ensuring that those who borrow funds opt for low risk projects. Whether collateral play any role in the ability of SMEs to access DFI services in Eswatini, is the intended investigation of this study.

2.4.2 Loan amount and credit rationing

Limited empirical contributions by scholars like Becchetti *et al.,* (2011) and Kirschenmann (2016) have focused on "loan size rationing", where the lender offers a lower loan size as compared to the one which the borrower originally applied for thereby creating a situation referred to as "loan size rationing".

A study by Kjenstad and Su (2012) concluded that "at the equilibrium interest rate, increasing the loan size reduces the average cost of the loan, so the borrower always demands a larger loan than what the lender can offer even in a perfect credit market". In addition, Kjenstad and Su (2012) further concluded that before making a loan, banks will comprehensively assess the risk of the borrowing enterprises, SMEs' initial asset size is usually below the critical collateral value, which made them unable to transmit their risk levels, and SMEs' loan size is usually below the minimum loan size, which would cause higher costs to banks. Mohamed *et al.* (2019) did a study in Somalia which sought to identify the factors that affect loan repayment in Garowe district in Somalia. In this study, it was concluded that the smaller the loan amount or size the lower the defaulting rate and vice versa. Thus, when loan size increases the likelihood of defaulting also increases and leads to repayment problem.

Loan amount rationing has an impact in overall terms on indivisible projects which SMEs seek to invest in. A reduction in the loan size and loan amount will result in an incomplete project which in turn will offer the SME business no return thus affecting loan repayment performance (Kirschenmann, 2016). Does loan amount play any role in the ability of SMEs to access DFI services in Eswatini? This study sought to find out the truth about this factor.

2.4.3 Loan term and credit rationing

The loan term refers to the loan repayment period for a specific loan borrowed from a bank. Kirschenmann (2016) stated that loan period rationing refers to a scenario where lenders prefer a shorter loan repayment period for borrowers as compared to longer repayment periods in order reduce to their credit risk exposure.

According to Mutezo (2015), lenders will determine the length of a repayment period based on how they assess the riskiness of a borrower, thus the money-lending institutions need to feel confident that the borrower will be able to repay back their debt on time; hence, from the lender's perspective, the longer the repayment period, the greater the risk to the lender (Mutezo, 2015). That means the length of a loan repayment period depends on the kind of financial credentials which the SMEs bring to the table and that is inclusive of the credit history of the SMEs and factors like collateral. Does loan term play any role in the ability of SMEs to access DFI services in Eswatini? This study wanted to find out the truth about this factor's contribution to SMEs development and growth in Eswatini.

2.4.4 Interest rate and credit rationing

The interest rate (IR) is the annual fee charged by a lender to a borrower in order for the borrower to acquire a loan (Kamunge *et al.*, 2014; Rahman, *et al.*, 2016). IRs are, therefore, the rental charged to the borrower by the lender for the use of the funds. It may also be termed as an opportunity cost to lenders for the loss of use of the asset they borrow out (Beck *et al.*, 2009). If the asset was cash money, the lender could have used the money for own investment or for savings. The magnitude of interest would depend on the perceived risk of the borrower. The IRs would be low if the borrower is thought to be of low risk, and if the borrower is seen as belonging to the high-risk category the interest rates will be higher (Rahman *et al.*,2016).

Although the term 'IR' is a universal concept, few people or businesses are aware of how FIs and lenders determine IRs and how it impact on the borrowers' businesses and in the economy at large (Mutezo, 2015). IRs are not universally identical, according to Camba-Mendez *et al*. (2016) and they differ in accordance to the time span of the loan. When IRs go up, banks charge more for business finances. Businesses dissipate more of their earnings in servicing loans, contrived through FIs as a result of the increased IRs. This decreases their disposable income (Berger *et al.*, 2006).

SME owners would not launch new project or invest in expansion when IRs are high. Camba-Mendez, *et al*., (2006) revealed that the opposite is true in that when IRs are low firms would borrow more voluntarily, invest in new ventures and make more returns. Some smaller banks would permit relationship lending to small firms by devising lending schemes that offer advantages to the small firms (Rahman *et al*., 2016). Conversely, larger banks argue that due to their size they offer additional advantages to small firms through the availability of specialized financial instruments such as factoring that allows small firms to avoid financial risks. Foreign banks, on the other hand, claim to bring in more competitive and innovative ways of lending techniques that benefit small firms (Beck *et al.*, 2011).

The culmination and competition of these banks is intended to help curb the negative effect of high IRs facing small firms. While the conventional belief is that smaller banks allow relationship lending and are more available for lending to small firms, nonetheless, small firms still face the crunch on prohibitive high IRs (Rahman *et al.,* 2016). Due to the risk factor associated with small firms, FIs do impose 'safe' IRs (which are always higher than normal lending rates) to cover themselves in case of default. In many African countries although

SMEs form the largest number of banks' clients, banks prefer to work with large multinational conglomerates and governments which offer less risk and higher returns, crowding out most of the private sector from the financial system (Gbandi and Amissah, 2014).

Prohibitively high rates of interest would force some SMEs into opting for financing outside the formal FIs (Cálice *et al.*, 2012). In Kenya for instance, the so-called Pyramid schemes stepped in with the promises of financial rescuing of small firms through soft borrowing free from collateral exigencies, and reduced IRs (Kamunge *et al.*, 2014).

In Mozambique, a similar scenario is evident with SMEs opting for the so called Xitique financing schemes that offer interest free loans to their members (Cunha, 2014). High IRs have made it difficult for start-up SMEs to be launched by potential entrepreneurs (Beutler and Grobéty, 2013). A study in Kenya by Ong'olo and Awino (2013) revealed that nearly three quarters of new start-up SMEs obtained their initial capital from personal fund, with a bit of over ten percent depending on family help. Merely less than 2 percent of start-up SMEs got assistance from banks, partially due to high IRs and insistence on collateral. A secondary effect of high IRs affects the general population, being that high IRs have negative effect on the disposable income that is available to clients. Kamunge *et al*. (2014) admit that if clients have limited funds to spend there would be little demand for goods and services from SMEs. In the long run, high IRs can limit company sales, as money that could have been paid for SMEs goods and services is diverted to interest payments or savings. Does IR play any role in the ability of SMEs to access DFI services in Eswatini? This study wished to find out the truth about this factor.

2.4.5 Enterprise age and credit rationing

Enterprise age refers to the period that an enterprise has been in existence since establishment. Another important factor that mitigates the credit rationing is the age of the firms. Diamond (1991) and Oliner and Rudebusch (1992), found that in credit rationing, a firm's age is an indicator of the firm's quality, since longevity may contain a signal for survival ability and quality of management, as well as the accumulation of reputational capital. Moreover, the information gap is relatively smaller for older firms given their longer track record (Petersen and Rajan, 1994; Cressy, 1996). In addition, recent studies have indicated t the likelihood of credit rationing increases for more innovative firms. Abor and Biekpe (2009) noted that age of an enterprise is an important determinant of SMEs' access to formal credit. The authors

suggested that an enterprise that has been in operation for a long time, subsequently build a strong reputation over the years with the formal credit institutions, and hence can easily access formal credit. However, start-up firms are more likely to face financing problems and an enterprise's access to finance depends on its stage of development. Evidence by Fatoki and Asah (2011) revealed that SMEs established more than five years have a far better chance to succeed in their loan applications compared with SMEs that have been in business less than five years. Does SMEs' age play any role in the ability of SMEs to access DFI services in Eswatini? This study wished to find out the truth about this factor.

2.4.6 Enterprise location and credit rationing

The place where an enterprise operates is also one of the determinant factors of credit access and this is not just innovative to SMEs that are penalised when trying to obtain finance. Another crucial aspect of borrower heterogeneity concerns geographic location. It is now increasingly recognised by economic geographers that where a firm is located fundamentally shapes its ability to obtain finance (Martin and Sunley, 2015). Owing to organizational and technological changes which have reduced the relational proximity between SMEs and DFIs. Small firms located in peripheral areas encounter a "liability of distance" (Lee and Brown, 2016: 23). While this is germane to all SMEs (Degryse *et al.,* 2015; Zhao and Jones-Evans, 2016), it appears that innovative SMEs located in peripheral areas are particularly disadvantaged (Lee and Brown, 2016). Other studies revealed that large national DFIs have a "home bias" which constrains local branches from lending to "soft-information intensive borrowers, such as small innovative enterprises" (Presbitero *et al.,* 2014: 57). Evidence suggested that many of these afore-mentioned issues relate to a structural problem associated with so-called "thin markets" where investors and entrepreneurs find it difficult to connect with each other outside core geographic areas (Nightingale *et al.,* 2009). Other scholars have noted how the weak levels of local competition within some local areas leads to DFIs "cherry picking*"* customers restricting credit to other SMEs (Canales and Nanda, 2012). Recent research suggests that thin markets spill over into other forms of SME lending markets in peripheral regions which may lead to the use of inappropriate types of finance such as credit cards (Brown *et al.,* forthcoming).

Some studies such as those of Guirkinger (2008) and Gine (2010) highlighted the importance of location of borrowers on informal credit choice. Using survey data on Thai households in rural areas, Gine (2010) showed that the existence of transaction (for the borrowers) and

enforcement costs (for the DFI) promotes informal financial transactions in rural areas. Gine (2010) showed that DFIs are less willing to lend to borrowers whose creditworthiness is difficult to evaluate in rural areas and DFIs have limited ability to enforce contracts, when compared to informal lenders which makes DFIs reluctant to lend people in rural areas. Moreover, the fixed transaction costs of borrowing can be another explanation for the higher informal credit usage in rural areas, especially when the amount of credit needed is small. In case of borrowing from formal sources, the average fixed cost will be smaller as the loan amount increases. Since the formal credit providers are located generally in bigger towns, transaction costs are higher for the borrowers that are located in rural areas, moreover the enforcement costs are higher for the DFIs in case of lending to borrowers in rural areas.

It is important to note that the credit rationing theory does not suggest that all firms that seek credit should be able to access it. Some proponents suggest that any evidence that firms are unable to get finance is a market failure. However, this is not true. Theories around market failures do not suggest that all firms should get capital, merely that there may be situations where firms which are in a perfectly working market, would obtain finance. Does location play any role in the ability of SMEs to access DFI services in Eswatini? This study wished to find out the truth about this factor.

2.4.7 Gender and credit rationing

In developing countries such as Eswatini, the explicit concern of access to debt finance for women has received global intervention. This is so because women entrepreneurs face many more access-to-debt barriers compared to their male counterparts (IFC, 2013). Gender parities, especially concerning access to debt finances, are a key issue in promoting economic growth and sustainable development in female-owned SMEs. Better delivery of financial debts to both female- and male-owned enterprises without partiality will improve the performance of SMEs significantly.

Evidence from Cassar (2004) and Irwin and Scott (2010) showed that owners' characteristics such as gender make a difference to a firm's ability and likelihood of accessing formal credit. It is, however, worth underscoring that irrespective of loan type and other relevant factors, women microcredit-borrowers have displayed better repayment performance than their male counterparts in countries like Bangladesh (Hossain, 1988), Malawi (Hulme, 1991; Khandker *et al.*,1995; Sharma and Zeller, 1997); Malaysia (Gibbons and Kasim, 1991); and Guatemala

(Kevane and Wyidick, 2001). In a cross-country study, D'espallier *et al.*, (2011) investigated the repayment records of 350 MFIs in 70 countries. Their results confirmed that, ceteris paribus, a higher percentage of female clients in DFIs are associated with a lower portfolio risk, fewer write-offs, and fewer provisions. In this study, we seek to identify the proximal causes of such gender differentiated behaviour in the repayment of microcredit.

The origin of gender differences in human behaviour has been a long-debated issue. Most theorists who have considered the origins question have taken either an essentialist or a social constructionist perspective (Wood and Eagly, 2002). Those subscribing to the essentialist perspective, for example, emphasize that men and women are born different and they remain so for the rest of their lives because gender differences in behaviour have their roots in biology and genetics (Baron-Cohen, 2003; Lawrence, 2003). Neuroscience and evolutionary psychology as, two rapidly progressing fields that investigate the proximal causes of behaviour, support this point of view. Evolutionary psychologists, for instance, explain gender differences in behaviour based on evolutionary principles about gender selection pressures. They argued that gender differences in behaviour result from different reproductive pressures that ancestral males and females encountered over human history (Gangestad and Simpson, 2000).

The constructionists, on the other hand, view gender-differentiated behaviour as a context-dependent outcome of social processes (Geertz, 1974; Williams and Best, 1982; Eagly, 1987; Bohan, 1993; Lorber, 1994). According to this view, gender differences in behaviour arise from the societal position of women and men through, for instance, the division of labour into homemakers and full-time paid employees. Thus, a testable implication of the constructionist view is that there should be observation of a reversal of any gender- differentiated behaviour in two distinct societies where the roles of men and women are mirror images. This study examined the validity of this view in the context of micro loan repayment behaviour.

Although only scant formal studies have so far been undertaken to identify the proximal causes of gender differences in the repayment of microcredit, various anecdotal explanations prevail in the literature, which are consistent with the constructionist view. One such explanation is that women have fewer credit opportunities in developing countries. Thus, in order to ensure continued access to credit, they (a) adopt more conservative investment strategies (Todd, 1996); and (b) exert greater effort in their projects (Ameen, 2004). Continued

access to loans is particularly valuable to women entrepreneurs because, in most developing societies, there is limited access to household resources (Armendariz de Aghion and Morduch, 2010). Another argument is that women clients can be monitored easily by loan officers as they stay close to home rather than going out to work like the men (Rahman, 2001; Goetz and Gupta, 1996). The essence of these arguments is that gender difference in the repayment of microcredit can be explained simply by the roles that women play in a typically male dominated society.

However, there are also reasons to believe that gender differences in repayment behavior have a natural basis. On the one hand, the act of repaying a loan signals the level of trustworthiness of a borrower (Becchetti and Conzo, 2011). On the other hand, psychological and biological research suggests that women can be naturally more trustworthy than men. For instance, evolutionary psychologists argue that women have historically invested more in raising their offspring than men. Ancestral women used to compete with other women in order to attract long term mates to protect the future of their offspring. Thus, women evolved, through the process of biological evolution – disposition that favours trustworthiness and risk aversion (see, for example, Archer, 1996) – the two critical virtues that may naturally promote better loan repayment behaviour among women. Biological research, in this context, suggests (a) that the level of trustworthiness is positively associated with the level of oxytocin release in a person (Kosfeld *et al.,* 2005; Zak *et al.,*2005); and (b) that the magnitude of oxytocin release is significantly higher among women than men (Carter, 2007). Does gender play any role in the ability of SMEs to access DFI services in Eswatini? This study wanted to find out the truth about this factor.

2.5 Credit rationing in Eswatini

The credit rationing theory as the theoretical lens of this study is applicable in that information asymmetry problems exist amongst DFIs and SMEs in Eswatini and according to Cheng (2014) have resulted in SMEs self-rationing and not accessing credit and has also resulted in lender imposed rationing with lenders not advancing credit (fully or partially) but rather resorting to screening methods that are aimed at reducing their credit risk. DFIs in Eswatini that advance loans to economic agents (SMEs) are not only interested in the interest they receive on loans, but also the risks of such loans (Dlamini, 2016).

DFIs have employed various screening means to identify potential borrowers who are more likely to pay back their loans since the expected return on such loans depends crucially on the

probability of repayment (Dlamini, 2016). DFIs in Eswatini have resorted to requiring collateral on loans to SMEs, reducing loan amounts being advanced to SMEs to reduce credit risk, reducing loan repayment periods to recover loan amounts promptly so as to avoid the prospects of default and increasing interest on loans advanced to SMEs as they are perceived to be high risk. It is for this reason that high-risk borrowers, faced with high IRs, reduced loan size, reduced loan repayment periods and collateral do not opt for loans from DFIs. The terms of loan contracts are thus designed by DFIs in a manner that induces borrowers to take actions in the interest of banks thereby attracting low risk borrowers only (Dlamini, 2016).

As a result of these information asymmetry problems, a funding gap has been created whereby SMEs are unable to borrow all they want, or some loan applicants are unable to borrow at all thus not accessing credit lines which are crucial for their growth and for them to contribute meaningfully towards economic development in Eswatini (Zeng, 2014).

2.6 Definition of and Classification of SMEs for the Study

Businesses within the SME sector in the KoE are classified using the same set of criteria. Micro enterprises are those engaging up to three people, and employing capital less than E50, 000 or earning a turnover of up to E60, 000 (FINCORP, 2017). The majority of micro enterprises fall under the informal sector. Small enterprises are mostly formalized businesses employing between 4 to 10 people or with capital investment from E50,000 to E2 million, and turnover of up to E3 million (Adisa *et al*., 2014). Medium enterprises employ between 11 and 50 people or use capital investment from E2 million to E5 million and a turnover of over E3 million to E8 million. A different classification is applied to micro-enterprises that are formal and engage in delivering professional services. Consultant, sales and marketing personnel, accountants and lawyers fall in this category. Individuals in these and other fields may operate as self-employed entrepreneurs (IFC, 2010).

The directive defining the criteria for classifying SMEs provides that if there is an ambiguity as to the class an enterprise belongs to, the number of employees should be used as the deciding criterion. For example, a business with a turnover of E3.5 million but employing seven people will be defined a small rather than medium business. In addition, owner-operated independent SME is considered as substantially different from those of the SME subsidiary firm of a large organisation (Dlamini, 2018). Due to doubt pertaining to the accuracy of turnover and value of assets calculations, the author only uses number of employees to

determine business size. These classifications are adopted throughout this study (FINCORP, 2017). Table 1 gives the definition of SMEs in KoE.

Table 1: Definition of SMEs for this study

CLASSIFICATION	INDEPENDENT ENTREPRENEUR Formal & professional	MICRO Informal	SMALL Formal	MEDIUM Formal
Employees	0	0 – 3	4 – 10	11 – 50
Value of Asset	<E50 000	<E50 000	E50 000 to E2 million	E2 million to E5 million
Turnover	<E60 000	<E60 000	< E3 million	Up to E8 million

MATURE: >10 years ESTABLISHED: 6 - 10 yrs GROWTH PHASE: 3 - 5 years START UP: 0 - 2 years

Source: SME Policy (2009) Eswatini

2.7 Importance of Financial Institutions in SME Development

The financial services sector is expected to contribute greatly to realization of the Sustainable Development Goals (SDGs) 2030 in the KoE (FINCORP, 2017). The DFIs are a very important source of funds for the operation, development and growth of SMEs in the Kingdom (Dong and Men, 2014). Most of the DFIs have been adopting innovative technology and the creation of tailor-made products in different sectors of the economy, most particularly, the SME sector in order to improve on the quality and variety of the loan portfolio (Malede, 2014). Most of the DFIs in the KoE have established separate units to specifically handle the needs of their SME customers, in acknowledgement of the inherent differences between SME customers and other corporate customers.

The financial services sector is fragmented with different institutions using different lending technologies to serve clients, which resulted in funds not flowing from one segment of the financial system to the other. This resulted in the implementation of two major financial liberalisation programmes in the KoE for SMEs (Dlamini, 2017), the liberalisation of financial

markets, removal of restrictions and the deregulation of interest rates. However, it had a minute effect on the conditions that inhibit DFIs from financing SMEs leaving their demand for credit unsatisfied. The CBE's main objective is to restructure financially distressed DFIs, improve savings mobilization and enhance credit allocation especially to SMEs, enhance soundness in the banking sector by promoting competitive banking practices, develop money and capital markets and establish a special division for non-performing assets recovery trust (Sithole, 2017).

In a study conducted by OECD (2014), it was established that financial liberalization leads to improvement in the efficiency with which investment funds are allocated. The OECD stated that central governments must endeavour to ensure that businesses have access to institutional credits and deposit mobilisation. Unfortunately, a study by the United Nations (2017) reported that SMEs have rather been marginalised from the credit market after financial liberalisation and therefore they are still suffering from credit scarcity.

The ADB Group (2011) argued that financial system plays a crucial role in development through the reduction of information and transactions cost and its efficiency in reducing those cost influences savings rates, investment decisions, technological innovation and long run growth rates. They stated that DFIs play a major role in promoting economic growth by ensuring the availability of cash flow cost credit to potential investors.

The United Nations (2012) argued that in the early stages of economic development suppressed interest rates, credit policies and institution building provided the financial impetus necessary for economic development. It is in the interest of DFIs to ensure that the economy is growing efficiently by playing an intermediary role between suppliers and lenders of funds in any economy by gathering surplus funds in the economy and then lending these funds to those who need them.

2.8 Chapter summary

This chapter undertook a review of the literature in the area of this study, the credit rationing theory (concepts and definitions), adverse selection effects, forms of credit rationing, critiques of credit rationing, the empirical analysis of the constraints faced by SMEs in accessing credit, definition of SMEs and the characteristics of the SMEs, and finally importance of financial institutions to the development of SMEs. The synthesis of these aforementioned issues forms the basis of this study by obtaining the details of the concepts of credit rationing and applying

them to the situation of the same in Eswatini context. DFIs mainly apply this theory in handling credit demands of SMEs that compromises their relationships – while DFIs are there to foster development and growth of SMEs. Despite the application of this theory in Eswatini, the current government (through Ministry of Trade and Industry) advocates for universal access to DFI funding for all SMEs. However, SMEs are getting disproportionate access to DFI services in Eswatini, which is the concentration point of this study. Are there obstacles that Eswatini SMEs facing in accessing DFI services? Based on credit rationing concepts discussed in this chapter, selected credit-rationing factors were evaluated empirically (as discussed in section 2.4) affecting SMEs in Eswatini accessing loans through analysis approach discussed in the chapter that follows.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter gives an insight into the methodology that was used in this research study which sought to examine the factors affecting SMEs' access to lending from Eswatini DFIs. The methodology adopted for this study was determined by 'appropriateness' for the study. This is to ensure the gathering of reliable and relevant data and the application of appropriate statistical techniques in the data analysis so that potential statistical errors could be controlled; and valid conclusions arrived at (Sanders *et al.*, 2016). This study employed the quantitative research techniques. This chapter provides an overview of the research design and approach, the target population, sampling methods and sampling techniques, the sample, data source, the definition and measurement of variables (including theoretical discussion linking each independent variable to the dependent variables) and the data analysis approaches and techniques used by this study.

3.1 Research Design and approach

This chapter describes the research methodology approach used to accomplish the aims of this study. A methodological research approach and design is a framework that binds research together so that the research questions can be analysed effectively (Edmunson and McManus, 2007). Identification of research method is important because it makes the collection of data easier and gives a clear idea about the required information (Trochim and Donnelly, 2006).

This study tested key factors of credit rationing affecting SMEs in gaining access to finance. To this end, a quantitative research method which followed the explanatory research design was applied in order to collect and analyse quantitative data on variables in order to establish the association or relationship between quantified variables (Saunders and Lewis, 2012; Martínez-Ferrero and García-Sánchez, 2017). This is a retrospective study that takes a quantitative approach in observing the obstacles that Eswatini SMEs face when accessing financial services (loans) from Eswatini DFIs. Punch (2005) stated that quantitative research is typically directed at theory verification and related to numerical data. Creswell (2012: 13) stated that "in quantitative research, the investigator identifies a research problem based on trends in the field or on the need to explain why something occurs". It is for this reason that it

was deemed appropriate to try and explain factors which impact on SMEs accessing DFI (loans).

In listing some of the advantages of a quantitative research method, Martinez-Ferrero and Garcia-Sanchez (2017) highlighted the use of statistical methods in the analysis of data thus enabling the use of statistical inference procedures to generalize the findings from a sample to a defined population. In addition, Martinez-Ferrero and Garcia-Sanchez (2017:107) indicated that quantitative research "performs pervasive and controlled measurement, it is objective and observes linear relationships and the testing of hypothesis". Through quantitative research, mathematical models were applied to predict the relationships that could establish, develop, strengthen and review the existing theory (Martínez-Ferrero and García-Sánchez, 2017).

The data used to conduct the empirical investigation were obtained from the database of CBE, which contains information of all those loans applicants (SMEs) and loan status – whether successful or not by DFIs. As a requirement all loan applicants through their applications, give out their business details ranging from name of institution, proprietor, gender, employment size, establishment period, type of business, amount required, repayment period, interest rates, collateral information, business place, etc. for the lending institutions to consider. The data contained in this database was ideal for this study as it contained information on key variables that can give a picture of what transpires in loan applications and meets special data needs for the review of access of SMEs to DFI loans.

3.2 Sample and data source

One of the most indispensable aspects of a study is data collection, since it essentially contributes to the overall assembling of information to address the research question (Babbie, 2015). It is however essential that the method used in obtaining the data be executed with sound judgement and the application of appropriate research principles (Ary *et al*., 2014). According to Creswell (2013), quantitative research collects data on predetermined instruments that yield statistical data.

The study used secondary data because it allows testing of correlation of the chosen variables and was compiled from reviews of data published by the CBE on loans issued to SMEs by DFIs. Abma and Stake (2014) stated that due to the adequacy of secondary data there is no need to collect primary data if it is available to answer the research question(s). Therefore,

this research used secondary data of all 1, 390 loan applicants in 2018 from CBE database to measure the extent to which SMEs find it difficult to access loans in Eswatini and eventually test the hypothesis that SMEs in Eswatini do not face barriers to access to DFI lending.

3.3 Analytical approach and variables used

The data analysis involved the use of both descriptive and inferential statistics. Simple descriptive statistics were used in order to have a summary description of the variables used in the analysis. This involved the use of percentages, means, frequency distributions and standard deviations to describe the socio-economic characteristic parameters and institutional factors but also compare within and between impacts of loan application on those who accessed loans and those who failed to access. Besides descriptive statistics, inferential statistics were used to determine the covariates of the likelihood of having a loan from DFI. In this study, the success of SME loan applicant to access a loan was measured by a loan application status (LAS), which is a dichotomous variable. This variable was then used as a dependent variable (Y_{ij}) that was analysed to find out if there were any other independent variables (SME age, gender of SME owner, SME location, SME collaterals, interest rates, loan amounts and loan terms) that were associated with its behaviour. Loan access and non-access were analysed using the following general (*Equation 1*) formula. Multiple logistic regression model characterizing LAS by the SMEs was specified as: If $y_{LAS\,i}$ is the loan application status for the i^{th} SME (where i = 1 for successful application and i = 0 for unsuccessful application), then the models would be specified as:

$$y_{LAS_i} = \beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k; \qquad (1)$$

where β_0 is a constant, $\beta_1 + \cdots + \beta_k$ are coefficients (or weights) attached to covariates and $X_1 + \cdots + X_k$ are covariates (independent variables – categorical/continuous). Table 2 gives the variables assessed in the model:

Table 2: Variables in the model

Variable	Description
Age	Age of SME since establishment in years
Gender	Gender of SME owner (1 for male and 2 for female)
LAS	Loan Application Status; 1 if SME accessed loan and 0 if SME did not access loan
Location	Residential area of SME; 1 if urban, 0 Otherwise
LAMOUNT	Amount of loan applied in Emalangeni
Loan term	Loan Repayment Period in months
Col	Collateral for SME in Emalangeni
IR	Interest Rate per months

Source: Author

The above analytical approach was adopted in conjunction with the quantitative research approach taking into account seven independent variables (refer to Table 2) namely loan amount, age of SME, location, gender of the owner, loan term, collateral offered and interest rate to investigate the extent to which these factors affect SMEs' access to DFI lending, whose proxy was LAS – the dependent variable.

Secondary data used in this dissertation were extracted and given in 2013 Microsoft Excel Package format by the CBE after formal request. The data were then transferred to SPSS (version 24) statistical package for summarisation and further analyses. The SPSS graphical user interface supports a variety of data preparation, statistical analysis and predictive modeling algorithms. Also, its menu driven usability makes it easy for any user unlike other packages that are based on manual writing of analysis codes.

3.4 Analysing the factors impacting SMEs' access to debt finance in Eswatini

Regression analysis is a collective name for methods that can be used for the modelling and analysis of numerical data consisting of values of a dependent variable (also called a response variable or measurement) and one or more independent variables (also known as explanatory

variables or predictors). The dependent variable in the regression equation is modelled as a function of the independent variables, corresponding parameters (constants) and an error term. Regression is used for hypothesis testing, and it is also referred to as modelling of linear relationships (Pallant, 2010). The use of regression analysis relies heavily on the underlying assumptions being satisfied.

For this study, a model that reflects the observed status of the SMEs access to loans was required. Such observations reflect a binary variable; i.e. accessing a loan or not. Since dichotomous variables cause analytical problems as they do not give a linear relationship between dependent and independent variables and linear probability models estimated by ordinary least squares are thus not applicable. Instead, the logit model was applied. According to Pindyck and Rubinfeld (1998:311), "the use of probit and logit models, that give maximum likelihood estimates overcome most of the analytical problems associated with linear probability models and provide parameter estimates which are asymptotically consistent, efficient and Gaussian so that the analogue of the regression t-test can be applied".

Logistic regression models are popular statistical techniques in which the probability of a binary outcome (such as accessing loan or not accessing loan) is related to a set of explanatory variables that are hypothesised to influence the outcome (Neupane *et al*., 2002). The adoption of this model was so as it is extremely flexible and widely used function and lends itself to meaningful interpretations when the dependent variable is dichotomous. Therefore, logistic regression model is computationally easier to use than the ordinary least squares regression analysis.

In addressing the research question that *"*How do credit-rationing factors such as collateral, interest rates, location, age of SMEs, loan term, gender of SME owner and loan amounts-influence SMEs' access to DFI loans in Eswatini*",* Equation 3 was used where the null hypothesis was:

$H_0: \beta_1=\beta_2=\ldots=\beta_k=0$ (All coefficients are not significantly different from zero, meaning that all variables have no influence as determinants of loan acquisition) versus the alternative hypothesis that:

$H_1: \beta_1\neq\beta_2\neq\ldots\neq\beta_k\neq0$ (All coefficients are significantly different from zero, meaning that either all or some variables have influence in loan acquisition).

For specific hypotheses, the following null hypotheses were formulated:

H_{01}: $\beta_1=0$ (the collateral coefficient is not significantly different from zero, meaning that it has no influence as a determinant of loan acquisition)

H_{02}: $\beta_2=0$ (the interest rate coefficient is not significantly different from zero, meaning that it has no influence as a determinant of loan acquisition)

H_{03}: $\beta_3=0$ (the loan amount coefficient is not significantly different from zero, meaning that it has no influence as a determinant of loan acquisition)

H_{04}: $\beta_4=0$ (the age of SME coefficient is not significantly different from zero, meaning that it has no influence as a determinant of loan acquisition)

H_{05}: $\beta_5=0$ (the location coefficient is not significantly different from zero meaning that it has no influence as a determinant of loan acquisition)

H_{06}: $\beta_6=0$ (the gender of SME owner coefficient is not significantly different from zero meaning that it has no influence as a determinant of loan acquisition)

H_{07}: $\beta_7=0$ (the Loan term coefficient is not significantly different from zero, meaning that it has no influence as a determinant of loan acquisition)

All these hypotheses were assessed using their respective coefficients and associated *p*-values with those *p*-values less than 0.05 implying that they are significantly different from zero and those with *p*-values above 0.05 implying that they are not significantly different from zero. If the results were not significantly different from zero, then that variable is of no significant importance in determining loan access in Eswatini.

Following Gujurati (1999), the logistic regression model characterising LAS by SMEs is specified as: If y_i is the fact that the i^{th} SME accessed DFI loan service and 1-y_i be the contrary fact that the i^{th} SME did not accessed DFI loan service. The dependent variable is the natural log of the probability of accessing a DFI loan (P) divided by the probability of not accessing a DFI loan (1-P). If the probability of y_i, P(y_i=1) = π_i and P(1-y_i=0) = 1-π_i, then; the Logistic Regression Model is given as:

$$logit(\pi_i) = log\left[\frac{\pi_i}{1-\pi_i}\right] = \frac{e^u}{1-e^u} = u = \alpha + \beta_1 X_1 + \cdots + \beta_k X_k \qquad (2)$$

where

$$u = \beta_0 + \beta_1 X_1 + \cdots + \beta_k X_k$$

β_0 = constant (the log odds of SME accessing loans without any effect from the covariates), $\beta_1 + \cdots + \beta_k$ = coefficients (or weights) attached to covariates and $X_1 + \cdots + X_k$ = covariates as explained in Table 2.

It should be noted that the estimated coefficients do not directly indicate the effect of change in the corresponding explanatory variables on probability (P) of the outcome occurring. The coefficients rather reflect the effect of individual explanatory variables on its log {ln[P/(1-P)]}. The positive coefficient means that the log odds increase as the corresponding independent variable increases (Neupane *et al.*, 2002). The coefficients in the logistic regression are estimated using the maximum likelihood estimation method. In this study, the test statistic used was the Wald test (also called the Wald Chi-Squared Test), to assess if an explanatory variable in the model are significant. "Significant" means that they add value to the model; variables that add no value can be deleted without affecting the model in any meaningful way.

3.5 Statistical Assumptions of Logistic Regression

Regression analysis is affected by the characteristics and distribution of variables involved. Therefore, there is a need to minimise these effects for the plausibility of the outcomes of the modelling. There are numerous statistical tests to determine if the assumption of the logistic regression analysis is satisfied. Some of the characteristics that can affect the outcomes are discussed below.

Outliers: these are defined as observations that are statistically different from the other observations. According to Hair *et al.*, (2006), outliers were also identified in this study and considered as missing to reduce the effects of their influence on the analysis.

Multicollinearity: It is defined as the extent to which a variable can be explained by other variables in the analysis (Hair *et al*., 1998). The magnitude of multicollinearity was analysed by considering the size of variance inflation factor (VIF). VIF quantifies how much the variance is inflated. As the interpretation of the results of the regression analysis is based on estimated coefficients, these coefficients are affected by variances; hence, the existence of multicolinearity inflates the coefficients. A rule of thumb is that a VIF of equal or greater than 10 represents an existence of multcolinearity.

The model validation was accessed through the Hosmer-Lemeshow statistic and R-Squared while model adequacy was checked through the predicted percentage correct and deviation obtained when estimating the selected model.

Correlational analysis: In probability theory and statistics, correlation (often measured in terms of a correlation coefficient) indicates the strength and direction of a linear relationship between two random variables (Pallant, 2010). Correlation analysis was conducted among the variables to provide insight into possible relationships among variables. Because of the conventional dictum that correlation does not imply causation, these correlations cannot be validly used to infer causal relationship between the variables (Pallant, 2010). Pearson correlation coefficient (with three possible outcomes – a negative value showing negative relationship, a positive value showing a positive relationship and a 'no relationship' outcome depicted by a zero (0) value) was used to test the association between the variables and the chi-square test to establish the level of significance of the association. Having established the presence of correlation, regression analysis, was done to determine the influence of the predictor variables on the endogenous variables.

3.6 Chapter Summary

This chapter presented the research methodology for this study. This was a retrospective study and used the explanatory research design which was purely quantitative. The population for this study and the sample of this study was identified. The data for this study was collected from secondary sources. The data for this study was then analysed using SPSS version 24.0 and the descriptive statistics, correlational analysis, and logistic regression analysis were used to assess the strengths between the variables of this study, namely the independent variables (age of SME, business type, loan amount, collateral on loan, interest on loan and SME location) and the dependent variable (access to DFI loans). The next chapter presents the findings of this study.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.0 Introduction

This chapter presents the results of data analysis and their discussions with regards to the objective of the study, which was to examine the factors affecting SMEs' access to loans from Eswatini DFIs and what could possibly be done to enhance a better efficiency of the financial intermediation process, regarding the ratio of capital that is directed to the SMEs. Using a database of loan applicants from CBE as a data source, a quantitative research approach was adopted using both descriptive and inferential statistics. The data were analysed and results of this are given and discussed in this chapter.

4.1 Descriptive statistical analysis of explanatory variables

The dataset comprised 1,390 loan applicants (SMEs) including both successful and unsuccessful applicants. There were many variables for each of the applicants in the database, however, for this study, only those that were necessary to achieve the objective of the study were extracted and Table 3 gives the summary of variables (categorical/discrete) used in the analysis and their description.

Table 3: Description of discrete variables used in the analysis

Variable	Categories	Number	Percent
Gender of Owner of SME			
	Male	695	50
	Female	695	50
	Total	*1390*	*100*
Location of SME			
	Rural	583	42
	Urban	807	58
	Total	*1390*	*100*
Loan Status			
	Loan Not Accessed	916	66
	Loan Accessed	474	34
	Total	*1390*	*100*

Source: Author

Table 3 shows that there were 1,390 loan applicants (SMEs), who had both categorical (discrete) and continuous variables. Of interest among the categorical variables were those given in Table 3. The composition of applicants by gender of owner of the SMEs shows that there was equal representation (50 percent for each gender) in the list of applicants. On geographical location of the SMEs, the distribution shows that 583 (42 percent) were in rural areas while 807 (58 percent) were in urban areas.

Application for a loan was one thing and getting it was a different thing altogether. This is where loan applicants know their fate in the economic muscle of their business. Table 3 shows that among 1,390 applicants, 916 (66 percent) did not access loans while 474 (34 percent) accessed loans. Table 4 gives the description of continuous variables that were in the analysis.

Table 4: Description of continuous variables used in the analysis

Variable	Number	Minimum	Maximum	Mean
Interest Rates (%)	1,390	4	15	12
Age of SME (Years)	1,390	1	56	16
Loan Amounts Applied (Emalangeni)	1,390	10,000	24,102,407	344,245
Repayment Period (Months)	1,390	1	160	22
Collateral (Emalangeni)	1,390	15, 000	3,615,361	196,475

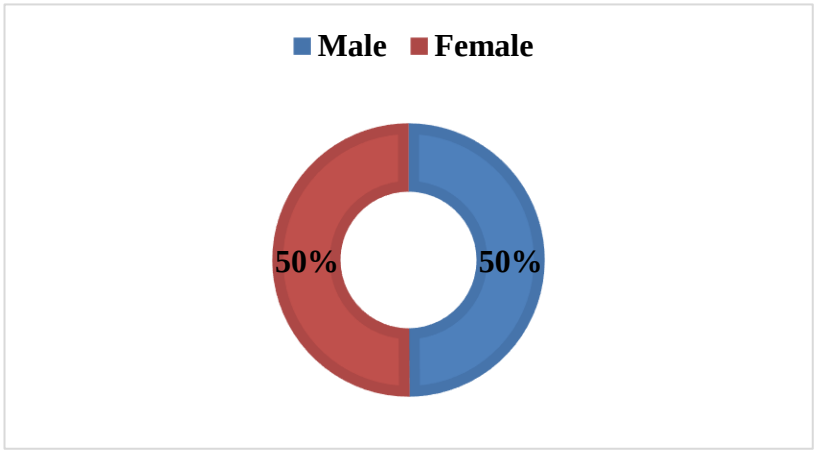
Source: Author

Table 4 gives the description of continuous independent variables to appreciate the variations of the SMEs in terms of how old they are, interest rates preferred, loan amounts applied for, preferred repayment periods and collateral offered. On interest rates, SMEs were given interest rates ranging from 4 to 15 percent with a mean of 12 percent. Table 4 shows their existing period (ages) since establishment. According to Table 4, there were some that were only a year-old while others were 56 years old with a mean existence of 16 years. The values of loan amounts applied for ranged from as low as 10, 000 to 24 million Emalangeni, with a mean loan of around 300,000 Emalangeni. On repayment period, Table 4 shows that some loan applicants agreed to a repayment period of one month, while others preferred to repay in 160 months with a mean repayment period of 22 months. Collateral that these applicants offered as shown by Table 4, ranged from 15 thousand to 3 million Emalangeni with a mean of around 196 thousand Emalangeni.

The study further isolated those who were denied access to loans and found out the distribution of some of the variables. Specifically, the study wanted to establish the gender of the owners, their location, their collaterals, their interest rates and repayment periods to ascertain the reasons behind the rejection of their applications.

On rejection by gender, Figure 5 shows a frequency tabulation that there was an equal rejection distribution across gender meaning that there was no gender bias in deciding on whom to reject. This outcome is in tandem with Aterido *et al*. (2013), who found out that the gender of the owner of the SME does not significantly influence access to DFI loans. Aterido's study used data from African countries which documented similar results, which displayed, no significant relationship between gender of owner and access to credit.

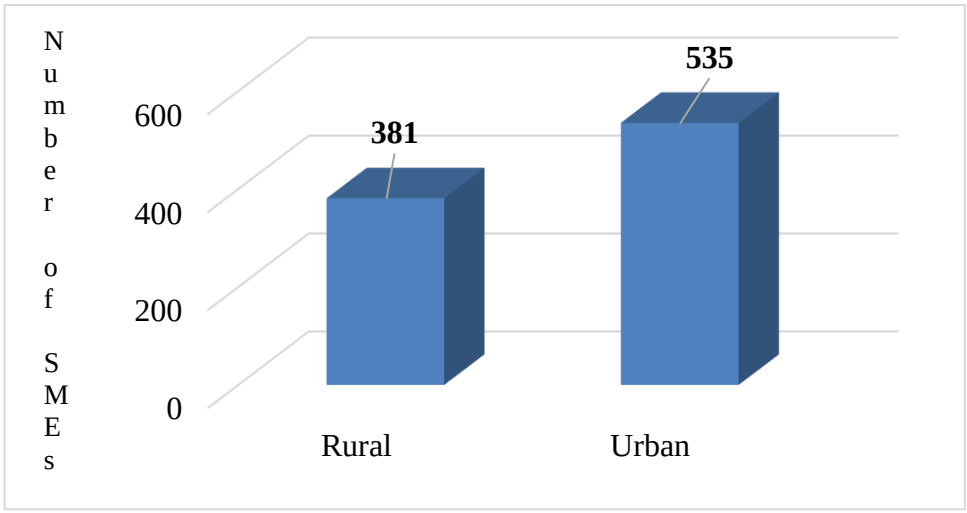
Figure 5: Distribution of rejection by gender of SME owners



Source: Author

On rejection by location, the results as shown by Figure 6 shows that most (535/916 = 58 percent) of rejected SMEs were in urban while 381out of 916 (around 42 percent) were in rural areas.

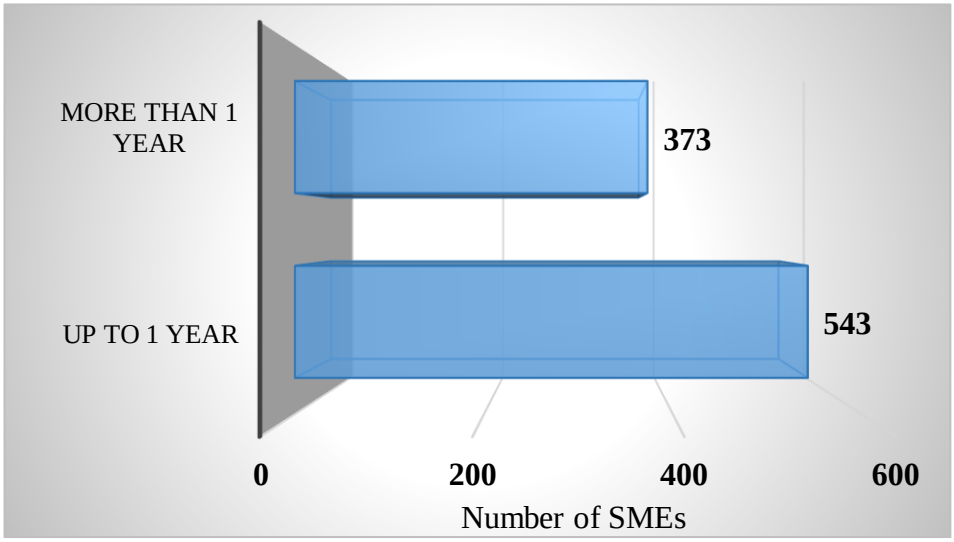
Figure 6: Distribution of rejection of SMEs by location



Source: Author

The distribution of the rejected SMEs was also described further by their existence periods as given by Figure 7.

Figure 7: Distribution of rejected SMEs by their existence period

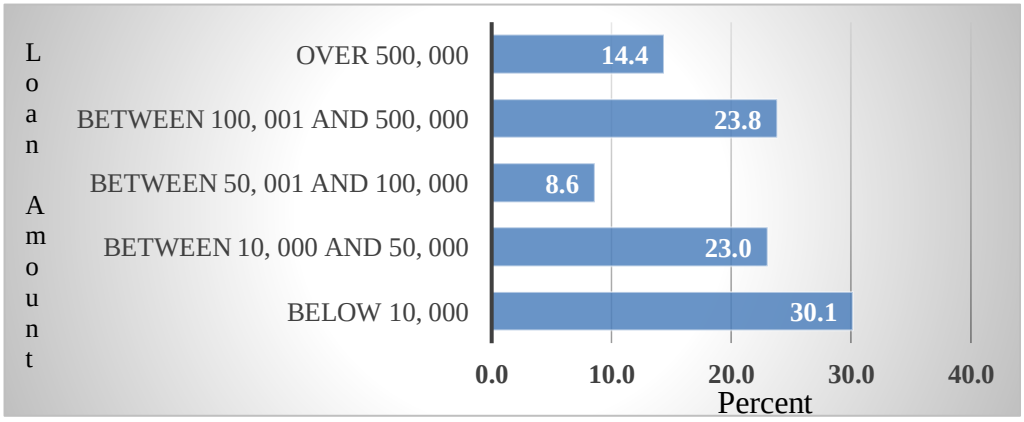


Source: Author

Most of the rejected SMEs (543/916 = 59 percent) ranged from a month to 12 months of existence i.e. were in their early stage and 373 (about 41 percent) were established over a year prior to loan application.

Another issue that was investigated, for those that did not access loans, was how much they were looking for in terms of loan to economically improve their business in reference to how much collateral they offered. Figure 8 gives the distribution of categorised loan amounts applied for by SMEs. As it is presented in Figure 8, the majority (about 30 percent) applied for small amounts of below 10, 000 Emalangeni with only about 14 percent that wanted loans above 500,000 Emalangeni.

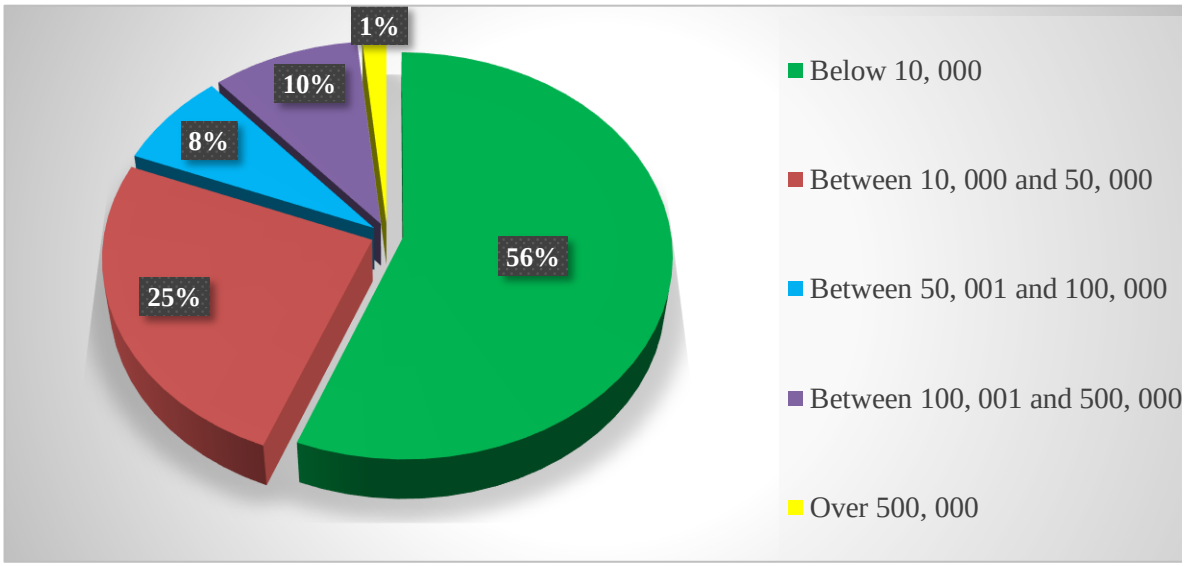
Figure 8: Percent distribution of Loan Amounts by categories



Source: Author

On collaterals given by applicants, Figure 9 summarises the percentage distribution of the monetary value of collateral committed for the loan applications.

Figure 9: Percentage distribution of categorised collateral amounts



Source: Author

Figure 9 shows that there were many loan applicants that committed collateral below 10, 000 Emalangeni, with only 1 percent that gave collaterals of over 500, 000 Emalangeni. On the distribution of categorised collateral and loan amounts, Table 5 gives the distribution of categorised loan amounts and collaterals of loan applicants to give a picture of loan amounts applied for compared to collaterals offered.

Table 5: Bivariate distribution of categorised collaterals and loan amounts of applicants

		Categorized Collaterals					
	Categories	Below 10,000	Between 10,000 and 50,000	Between 50,001 and 100,000	Between 100,001 and 500,000	Over 500, 000	**Total**
Categorized Loan Amounts	Below 10,000	419	0	0	0	0	**419**
	Between 10,000 and 50, 000	309	8	3	0	0	**320**
	Between 50,001 and 100, 000	50	65	5	0	0	**120**
	Between 100,001 and 500, 000	0	276	55	0	0	**331**
	Over 500,000	0	0	43	135	22	**200**
	Total	**778**	**349**	**106**	**135**	**22**	**1,390**

Source: Author

Table 5 shows that of 1,390 loan applicants, 419 of 1,390 (about 30 percent) had both loan amounts and collaterals below 10, 000 Emalangeni with only 22 out of 1,390 (about 2 percent) that had both loan amounts and collaterals above 500,000 Emalangeni. Figure 7 and 8 in conjunction with Table 5 point to the fact that most applicants applied for loans that they could not afford.

4.2 Relationships between credit-rationing factors that affect SMEs in accessing DFI loans in Eswatini – Correlation Analysis

Correlation analysis is one of the variable assessment tools used to test any association between used independent variables. This was done to assess the influence they might have in the model in determining the outcome of loan access. Table 6 gives the correlation analysis results (correlation coefficients) of all variables used in the model.

Table 6: Correlation Analysis of socio-economic factors that affect SMEs' access to DFI services in Eswatini

Variables	Age of SME	Gender of owner	Loan Amount	Interest Rate	Repayment Terms	Location	Collateral
Age of SME	1.000						
Gender of owner	0.005	1.000					
Loan Amount	-0.028	-0.001	1.000				
Interest Rate	0.044	-0.017	-0.178	1.000			
Loan Terms	-0.018	0.053	-0.233	-0.122	1.000		
Location	-0.004	0.025	-0.057	0.045	0.058	1.000	
Collateral	0.023	0.010	0.076	0.186	0.242	-0.042	1.000

Source: Author

The results in Table 6 show that there is an association between all variables with the direction (the signs of correlation coefficients) and strength (the actual values of the correlation coefficients) of the linear association using Pearson Correlation Coefficient. This means that the chosen variables were in the same family of characteristics of SMEs and are related to some extent but not strong. There were negative associations between some of the variables like age of SME and loan amounts applied (-0.028), loan terms (-0.018) and location (-0.004). Gender of owner of SME and loan amounts applied (-0.001) and interest rates (-0.017) were also negatively associated. Loan amounts and interest rates (-0.178), loan terms (-0.233), age of SME (-0.057) and location (-0.004) were also negatively associated. Interest rate was negatively associated with loan terms (-0.122). Location was negatively associated with collateral (-0.042). The negative direction as given by the sign means that a one variable changes in magnitude (increases), the other one decreases (changes the opposite direction) while those with positive sign means that as one increases (changes in magnitude) so does the other.

There were other variables that were positively correlated (when one variable increases in magnitude so does the other) such as age of SME and gender of owner (0.005), interest rate (0.044) and collateral (0.023). Gender of owner of SME was positively associated with loan terms (0.053), location (0.025) and collateral (0.023). Collateral was positively associated

with loan amounts (0.076). Loan terms was positively correlated with location (0.045) – when and collateral (0.186). Loan amount was positively correlated with collateral (0.058) – when SMEs collateral increases so does the loan amounts demand.

The lowest correlation is -0.001, which was between loan amounts and gender of applicant while the highest was between repayment terms and collateral with a correlation coefficient of 0.242. However, according to Tabachnik and Fidell (2007), there is no evidence on multicolinearity as all values are less than 0.70, which is the threshold for multicolinearity. For this reason, using these variables does not bring any problem on the modelling outcome.

4.3 Factors associated with loan access by SMEs – Logistic regression

The primary objective of the study was to examine the impact of credit-rationing factors in SMEs accessing loan in Eswatini. Binary logistic regression analysis was performed that resulted in the output reproduced (with coefficients, Wald test statistics, *p*-values and Odds Ratios as the basis of examination of the impact of each of the variables used). Table 7 gives the results of logistic regression analysis that was done using the aforementioned variables.

Table 7: Logistic regression analysis of factors associated with financial services access by SMEs in Eswatini

Variables	*Coefficients*	*Wald*	*p-values*	*Odds Ratios (Exp. (Coefficients))*
Age of SME	-0.012	7.770	0.005	0.988
Gender(male)	0.003	0.001	0.977	1.003
Loan Amounts	0.001	4.857	0.028	1.045
Interest Rates	0.014	0.300	0.584	1.014
Loan Terms	-0.004	2.493	0.114	0.996
Location (Urban)	0.026	0.049	0.825	1.026
Collateral	0.002	4.341	0.071	1.002
Constant	-0.597	3.417	0.065	0.551
Pseudo R-Squared	Cox & Snell	0.420		
	Nagelkerke	0.510		
Hosmer & Lemeshow Test		18.3		
	Classification Table	66.2		
	Observations	1, 390		

Source: Author

All seven (7) variables as given in Table 3 were included in the model and their corresponding parameters and test statistics given as well. Table 7 shows the results of estimation of the logistic model of loan applicants in two segments: the first containing the coefficients (which are then exponentiated to give odds ratios), the Wald values and factor change – odds ratios with their associated *p*-values. The magnitude of the odds ratios is classified into three: 1) those below 1, 2) those that are equal to 1and 3) and those above 1.

If the log odds are greater than 1, then the probability of a loan applicant accessing a loan is increased by that value minus 1, likewise the probability decreases by 1 minus that value. In this case, if the log odd is less than 1, then the loan applicants do not access a loan. The probability of being in either group is made based on the predictor variables. In logistic regression, the interpretation of coefficients is that it gives change in the log odds of the outcome for a one-unit increase in the predictor variable.

The coefficients given in Table 7 were also used to test the specific null hypothesis (as presented in section 3.4) for the variables to determine their respective effects in the SMEs' ability to access DFI services. The respective *p*-values were used as an evidence to reject or fail to reject the null hypotheses. Note that all those variables whose *p*-values are less than 0.05, affected the outcome of loan application while those with *p*-values of more than 0.05 have minimal or no impact at all. Apart from variable coefficients there is a constant, which is the intercept, shows that when all variables are zero, the coefficient for loan application status is -0.597, a Wald test of 3.417 and a *p*-value of 0.065. with the corresponding log odds (odds ratio) of 0.551, (which is less than 1) meaning that without submitting any additional important information, SMEs cannot access any loan – i.e. there is less likelihood that SMEs that does not submit any additional information to be granted a loan compared to those SMEs that submit important information. For each of the variables, below is the interpretation of their respective values.

Impact of age of SME on loan acquisition

Age of SME had a coefficient of -0.012, Wald value of 7.770 and a *p*-values of 0.005. Since the *p*-values is less than decision criteria of 0.05, we reject the hypothesis (H_{04}) that the

coefficient of age of SME is not significantly different from zero. Therefore, we conclude that was one of the variables that determined loan application status.

Impact of gender of SME owner on loan acquisition

Gender had a coefficient of 0.003, Wald value of 0.001 and a *p*-values of 0.977. Since the *p*-values is greater than decision criteria of 0.05, we fail to reject the hypothesis (H_{06}) that the coefficient of gender is not significantly different from zero. Hence, we conclude that gender of owner of SME did not have any impact on loan application status.

Impact of loan amounts on loan acquisition

Loan amounts had a coefficient of 0.001, Wald value of 4.857 and a *p*-values of 0.028. Since the *p*-values is less than decision criteria of 0.05, we reject the hypothesis (H_{03}) that the coefficient of loan amount is not significantly different from zero: hence, the conclusion that loan amount was one of the variables that determined loan application status.

Impact of interest rate on loan acquisition

Interest rate had a coefficient of 0.014, Wald value of 0.300 and a *p*-values of 0.584. Since the *p*-values is greater than decision criteria of 0.05, we fail to reject the hypothesis (H_{02}) that the coefficient of interest rate is not significantly different from zero. Hence, we conclude that interest rate did not have any impact on loan application status.

Impact of loan term on loan acquisition

Loan term had a coefficient of -0.004, Wald value of 2.413 and a *p*-values of 0.114. Since the *p*-values is greater than decision criteria of 0.05, we fail to reject the hypothesis (H_{07}) that the coefficient of loan term is not significantly different from zero. Hence, we conclude that loan term did not have any impact on loan application status.

Impact of location on loan acquisition

Location had a coefficient of 0.026, Wald value of 0.049 and a *p*-values of 0.825 as shown in Table 7. Since the *p*-values is greater than decision criteria of 0.05, we fail to reject the hypothesis (H_{05}) that the coefficient of location is not significantly different from zero. Hence, the conclusion is that location did not have any impact on loan application status.

Impact of collateral on loan acquisition

Collateral had a coefficient of 0.002, Wald value of 4.341 and a *p*-values of 0.071 as shown in Table 7. Since the *p*-values is greater than decision criteria of 0.05, we fail to reject the hypothesis (H_{01}) that the coefficient of collateral is not significantly different from zero. Hence, we conclude that collateral did not have any impact on loan application status.

From the result above, Age of the business and loan amount applied were found to be statistically significant affecting loan acquisition in Eswatini. For younger SMEs in age, the log odds of getting loan (versus not getting a loan) decreases by about 99 points, when all other factors are not considered, while for one-unit change in loan amount applied by SMEs, the odds of getting a loan (versus not getting a loan) increases by about 5 points when other necessary variables are not considered. The predicted model for accessing a loan in DFIs in Eswatini is given as:

$$u = -0.597 - 0.012Age\ of\ SME + 0.003Gender\ of\ owner + 0.001Loan\ amount + 0.014Interest\ rates - 0.004Loan\ terms + 0.026SME\ location + 0.002Collateral$$

The other five variables namely: gender of owner, interest rate, repayment term, location and collateral, which had their respective *p*-values above 0.05, were not significant predictors of access to loans in Eswatini. It means that they are not considered by DFIs as value information for one to access their loans.

As for gender, as also depicted by Figure 5, t there was no gender discrimination in accessing loans in Eswatini, which could mean that its validity as a factor for loan access is defeated. Interest rates are fixed by DFIs and applicants do not have any choice. This can also explain the reason for its insignificance in the model. Loan terms are mainly predetermined by DFIs such that applicants do not have a liberty to choose, hence this could be one of the reasons for its insignificance. Location of business entity was also insignificant for loan access. Most applicants were in urban areas and that did not persuade DFIs to grant them loans. Collateral was also insignificant, and it may be due to the fact that most of them declared very little or no collateral at all. This points to the full application of credit rationing by DFIs in assessing loan applicants.

The second part of the table gives the overall model information that summarises the goodness of fit (GoF) of the model. On the overall, the model has an explanatory power of somewhere between 42 (forty-two) (Cox and Snell R Squared) and 51(fifty-one) percent (Nagelkerke R Squared) of the variance of probability of accessing a loan. This means that loan applicants (SMEs) have little or no chance of accessing a loan to cushion their weak economic muscles for business development and growth if they depend on the submitted information only. There is other information that DFIs look for from SMEs in Eswatini for them to access their services. The only remaining source of hope for SMEs to survive economic pressure could be outside DFIs that can include friends, relatives and other well-wishers. Despite thin model explanatory power, it is well formulated and valid as far as Hosmer-Lemeshow test statistics of 18.3 are concerned. Classification table of all variables was 66.2, which is way above 50 percent. These two parameters give the overall proof that this was the correct model for variables used in the analysis.

4.4 Impact of credit rationing in Eswatini

The second objective of the study was to analyse if credit rationing affects the development and growth of SMEs in Eswatini. This was done by assessing the impact of each of the seven factors individually through their respective coefficients and *p*-values. The outcome as presented in Table 7 and discussed in sections 4.3 shows that there is a strong evidence that credit rationing is being applied by DFIs through age of SMEs and loan amounts and has an impact in Eswatini, such that SMEs are failing to access DFI services despite giving some of the required information during loan application process. DFIs were willingly not allowing SMEs to access funds to boost their economic power, even if the latter are willing to pay higher interest rates. DFIs in Eswatini that advance loans to economic agents (SMEs) are not only interested in the interest they receive on loans, but also the risks of such loans (Dlamini, 2016). The analysis in this study as shown by the output of the logistic model in Table 7 points to the fact that SMEs in Eswatini are feeling the economic heat from DFIs. The significance of the two (2) used socio-economic factors (variables), namely, age of SMEs and loan amounts is the undisputable evidence that DFIs in Eswatini are applying credit rationing in their loan processing.

4.5 Discussion of the results

Despite the government's strong emphasis in its National Policy on SMEs that for Eswatini to meet the challenges it faces in increasing the prosperity of the Swazi Nation, there is a

need to increase entrepreneurial activity in the country through enhancement of the environment in which businesses are set up, established and endeavour to grow needs to be conducive to enterprise. To this end they stressed on increased effort to channel funds to businesses from DFIs, private sources and from the commercial banking sector. There are still some SMEs that are struggling to survive through inability to access financial assistance 15 years after the launch of the policy. The purpose of this study was to assess factors associated with loan acquisition in Eswatini using a secondary dataset of 1,390 loan applicants that was obtained from the CBE. The analysis was preceded by summarizing the applicants' characteristics such as gender of the applicants, location of the business, loan status, interest rates, age of SME, loan terms, loan amounts applied, and collateral.

The analysis of these characteristics shows that these SMEs have mixed and varied characteristics which makes the use of this dataset very suitable for this analysis. On gender of owners of these SMEs, the analysis showed that both genders were equally denied access to loans as there was 50-50 percent rejection of applicants. This is encouraging as no gender had an upper hand in accessing loans as well as seeking financial help. On geographical location of the SMEs, the distribution shows that 583 (42 percent) were in rural areas while 807 (58 percent) were in urban areas.

When one applies for a loan it does not mean the end of the process and that you will get it. There are two possible outcomes in the application; access a loan or not. The analysis of this dataset shows that among 1,390 applicants, 916 (66 percent) did not access loans while 474 (34 percent) were the only successful applicants. This was against the Ministry of Commerce, Trade and Industry National Policy of the KoE on the development of SMEs, which was launched in 2003 (KoE, 2003). The policy clearly stated that "All Swazis who request financial assistance from microfinance institutions should have access to support in setting up a business". This was another pointer to the application of credit rationing in Eswatini. According to Stiglitz and Weiss (1981), credit rationing occurs when some borrowers receive nothing or less than the amount of credit applied for at prevailing market rates.

On interest rates, the analysis shows that DFIs offered loan interest rates ranging from 4 to 15 percent with a mean of 12 percent. Their ages since establishment was also analysed and

the results show that there were some that were only a year old while others were 56 years old with a mean existence of 16 years. Loan amounts applied ranged from as low as 10, 000 to 24 million Emalangeni, with a mean loan of around 340,000 Emalangeni. On repayment period, the analysis shows that some applicants preferred a repayment period of 1 month while others wanted to repay in 160 months with a mean repayment period of 22 months. Collateral that these applicants offered as a result of the analysis, ranged from 15 thousand to 3 million Emalangeni with a mean of around 196 thousand Emalangeni.

The study further isolated those who were denied loans and found out the distribution of some of the variables. Specifically, the study wanted to establish the gender of the owners, their business types, their location, their collaterals, their interest rates and repayment periods to ascertain the reasons behind the rejection of their applications.

Rejection by age of SMEs shows that most of rejected SMEs (543/916 = 59 percent) ranged from a month to 12 months of their existence i.e. were in their early stage and 393 (about 41 percent) were established over a year prior to loan application. How much were they looking for in terms of loan to boost their business in reference to how much collateral they offered was another issue looked into mainly for those that did not access loans. On paper, SME ownership by gender were treated equally for all applicants and this gave equal platform for applicants – no favouring of SMEs in any form as evidenced by rejection and acceptance of their applications.

Location as a factor of loan access is argued by Martin and Sunley (2015) as a positive factor that favours loan access, as those located in urban areas tend to create good relationship with financial institutions. However, this does not work like that as in this study most (58 percent) of SMEs were in urban that could give them an added advantage, but they were rejected due to other factors. It is important to note that theory does not suggest that all firms that seek credit should be able to access it. Some proponents suggest that any evidence that firms are unable to get finance is a market failure. However, this is not true. According to Brown and Lee (2017), the theory around market failures does not suggest that all firms should get capital, merely that there may be situations where firms which would, in a perfectly working market, obtain finance, do not.

There is undeniable fact that worldwide perspective access to finance has resonated in most studies as a critical area that is the Achilles heel of SMEs across a range of sectors. According to Barbero *et al.,* (2011), the inability of SMEs to gain access to adequate finance has long been considered a critical barrier to growth with some scholars such as Kerr and Nanda (2009) agreeing that entrepreneurial finance is the biggest hurdle for start-ups and newly established businesses. Available literature also suggests that if a firm does not hold sufficient financial capital, it will be negatively affected in its growth and overall performance given the fact that sufficient resources help entrepreneurs to undertake bold entrepreneurial ventures that can facilitate growth (Bamford *et al.*, 2000). It is for this reason that the evaluation of factors impacting SMEs access to finances would be necessary for their survival in this competitive business environment due to liquidity constraints.

An empirical analysis of this through the application of a binary logistic model was done to assess factors that Eswatini SMEs are exposed to that impact their access to financial assistance from DFIs. The entry point of the analysis was the correlation analysis of the variables used to check the existence of multicollinearity – relationships and their magnitude in terms of both strength and direction, which affects the output.

The results of correlation analysis show that some variables used were negatively associated like age of SME and loan amounts applied, interest rates, loan terms and location. Gender of owner of SME and loan amounts applied, interest rates were also negatively associated. Loan amounts and interest rates were also negatively associated. This means that as one variable increases in magnitude, then the other decreases or the behaviour of one of variable is negatively affected by the existence of the other. The lowest correlation is -0.001between loan amounts and gender of applicant meaning that these two variables are related in a negative manner. However, according to Tabachnik and Fidell (2007), the overall correlation output shows no evidence on multicolinearity as all values are less than 0.90 a value that is associated with a very strong relationship that affects regression analysis. It is for this reason that using these variables has no implication on the modelling.

The output of binary logistic regression analysis shows the results of estimation of the logistic model of loan applicants with the Wald values and factor change – odds ratios with their associated *p*-values. For a loan application to succeed in most of the lending

institutions in Eswatini the only determining factors are age of their businesses and loan amount applied. So, from the result above, only age of the business and loan amount applied for are found to be statistically significant in affecting loan acquisition in Eswatini. For younger SMEs in age, the log odds of getting a loan (versus not getting a loan) decreases by a single point when other factors are not considered. While for one-unit change in loan amount applied by SMEs, the odds of getting a loan (versus not getting a loan) decreases by about 5 points when other necessary variables are not considered.

As it should be the case that not every SME that applied for a loan can get it, which has been witnessed with this analysis. It is also acknowledged elsewhere by OECD (2012) in their studies conducted among European countries that as much as we need to prove the importance of access to finance, it should be acknowledged that access to finance remains a problem to most SMEs. There should be an alternative means of funding. In his studies conducted within the American context, Li (2002:1816) highlighted that capital markets do not provide adequate funds for young or newly established businesses.

In sub-Saharan Africa, research by Biggs and Shah (2006) suggested that access to entrepreneurial finances is largely bi-modal with larger SMEs having open and easy access to finance than small enterprises. The authors in their writing (2006:3046) suggested that the reason for this is that financial markets are underdeveloped thereby giving limited access to finances and the opportunity cost to capital is high. With these ideas, it would be accurate to accept as widespread that access to finance is problematic for small businesses.

Overall, the model has the explanatory power of somewhere between 42 (Cox and Snell R Squared) and 51 percent (Nagelkerke R Squared) of the variance of probability of accessing a loan. This means that loan applicants (SMEs) have little or no chance of acquiring a loan to cushion their weak economic muscles for business growth by only depending on the submitted information. The other alternative source of hope could be outside DFIs that can include friends, relatives and other well-wishers.

Credit rationing, an action taken by lending institutions to limit or deny access to credit based on borrower's worthiness mainly due to lender imposed has both worked and not worked as it is mainly situation based. It is an undeniable fact that worldwide perspective

access to finance has resonated in most studies as a critical area that is the Achilles heel of SMEs across a range of sectors. According to Barbero *et al*, (2011), the inability of SMEs to gain access to adequate finance has long been considered a critical barrier to growth with some scholars such as Kerr and Nanda (2009) agreeing that entrepreneurial finance is the biggest huddle for start-ups and newly established businesses. Available literature also suggests that if a firm does not hold sufficient financial capital, it will be negatively affected in its growth and overall performance given the fact that sufficient resources help entrepreneurs to undertake bold entrepreneurial ventures that can facilitate growth (Bamford *et al*., 2000). It is for this reason that the evaluation of factors hindering SMEs access to finances would be necessary for their survival in this competitive business environment due to liquidity constraints. An empirical analysis of this through the application of a binary logistic model was done to assess factors that Eswatini SMEs are exposed to that hinder their access to financial assistance from existing DFIs. The entry point of the analysis was the correlation analysis of the variables to be used to check the existence of multicollinearity, which affects the outputs.

The results of the logistic regression (insignificance of most of the factors) were as expected as the critique of credit rationing clearly found no statistically significant evidence of its effects as most of rationing criterion normally do not work perfectly. For instance, on collateral, Carbo-Valverde *et al.* (2015) proved that it failed as they found no strong evidence that increasing collateral leads to a borrower to repay the loan effectively. On loan terms, Mutezo *et al.*, (2015) argued that the longer the repayment period the riskier the borrower is to repay the loan. That is why there were more rejected loan applications. One of the factors was that most applicants requested longer repayment periods though they thought that the longer the period the more they are able they can repay the loans. Perhaps the applicants did not understand this before applying.

CHAPTER FIVE

SUMMARY, CONCUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarises the study and the route to conclusion and recommendations. It starts with the main objective of the study with the specific objectives, research methodology, summary of the findings, the conclusion drawn from the results of the analysis. Some limitations of the analysis results and recommendations drawn from the results are given at the end.

5.2 Objective of the study

The main objective of this study was to empirically investigate socio-economic factors that act as barriers to access to DFI lending by SMEs using a secondary dataset of loan applicants that was obtained from the CBE. Supplementary to the main objective, the dissertation had two subsidiary objectives: (1) to examine the relationships between credit rationing factors that affect SMEs to access DFI loans in Eswatini and (2) to analyse how credit-rationing factors affect SMEs to access DFI loans in Eswatini.

5.3 Study methodology

The research questions were investigated through a quantitative research method which followed the explanatory research design in order to collect and analyse quantitative data on variables in order to measure the extent of access to debt finance (dependent variable) on a binary scale of "1" access and "0" no access and its determinants (independent variables). Taking into account the nature of the dependent variable (LAS) – dichotomous and seven independent variables (*refer to Table 2*), namely loan amount, age of SME, location, gender of the owner, loan term, collateral offered and interest rate to investigate the extent to which these factors affect SMEs' access to DFI lending, a binary logistic regression modelling was applied as an analysis tool for the study. This was preceded by correlation analysis. Hypotheses were tested to back up the claims of existence of credit rationing in Eswatini. Also done was the assessment of each of the seven socio-economic

factors (variables) used in the analysis to determine its importance in the outcome of loan application process.

5.4 Summary of the work done

Credit rationing, an action taken by lending institutions to limit or deny access to credit based on borrower's worthiness mainly due to lender imposed has both worked and not worked as it is mainly situation based. This study concentrated on this lender-imposed credit rationing where DFIs in Eswatini have adopted to assess SMEs application process. Despite the government's strong emphasis in its National Policy on SMEs that for Eswatini to meet the challenges it faces in increasing the prosperity of the Swazi Nation there is a need to increase entrepreneurial activity in the country through enhancement of the environment in which businesses are set up, established and endeavour to grow, needs to be conducive to enterprise. To this end, the KoE stressed increased effort to channel funds to businesses from micro-finance institutions, private sources and from the commercial banking sector. There are still some SMEs that are struggling to survive through inability to access financial assistance 15 years after the launch of the policy.

5.5 Summary of the findings

The findings in relation to the main research objective indicates that SMEs in Eswatini face obstacles in accessing DFI services through the application of credit rationing. The results of the correlation analysis show that there is an association between all variables with the direction (the signs of correlation coefficients) and strength (the actual values of the correlation coefficients) of the linear association using Pearson Correlation Coefficient. This means that the chosen variables were in the same family of characteristics of SMEs and are related to some extent but not strong. The negative sign means that as one variable changes in magnitude (increases) the other one decreases while those with positive sign means that as one increases so does the other. The lowest correlation is -0.001, which was between loan amounts and gender of applicant while the highest was between loan terms and collateral with a correlation coefficient of 0.242. Multicollinearity, which is an issue in regression modelling was not present as all correlation coefficients were below the required benchmark of 60 between these variables.

The output of logistic regression analysis shows the results of estimation of the logistic model of loan applicants with the Wald values and factor change – odds ratios with their associated *p*-values. The constant, which is the intercept, shows that when all variables are

zero, the coefficient for loan application status is -0.597 with a corresponding odds ratio of 0.551. For an application to succeed in most of DFIs in Eswatini the only determining factors are age of their businesses (which has a coefficient of -0.012, Wald of 7.770, a *p*-value of 0.005 and an odds ratio of 0.998) and loan amount applied which has a coefficient of 0.001, Wald of 4.857and a *p*-value of 0.028 and an odds ratio of 1.045). So from the result above, only age of the business and loan amount applied are found to be statistically significant affecting loan acquisition in Eswatini. For younger SMEs in age, the log odds of accessing a loan (versus not accessing a loan) decreases by about 99 points. While for one-unit change in loan amount applied by SMEs, the log odds of accessing a loan (versus not accessing a loan) decreases by about 5 points when other necessary variables are not considered.

Overall, the model has the explanatory power of somewhere between 42 (Cox and Snell R Squared) and 51 percent (Nagelkerke R Squared) of the variance of probability of getting a loan. This means that loan applicants (SMEs) have little or no chance of acquiring a loan to cushion their weak economic muscles for business growth. This was because most of them were in their early start-up stage without much needed business experience in terms of management of resources, which is one of the conditions set by financial institutions for the access of their loan services. On the other hand, the amount of the loan applied for should be below or within their collateral as no lending institution can risk its capital to businesses that have a shallow financial base. The only source of hope is mainly outside microfinance institutions that can include friends, relatives and other well-wishers. The analysis in this study points to the fact that SMEs in Eswatini are feeling the heat from DFIs. The non-significance of the five (5) used socio-economic factors (variables) namely, interest rate, location, collateral, loan term and gender of the SME owner in determining the loan accessibility is the undisputable evidence that DFIs in Eswatini are applying credit rationing in their loan processing.

Credit rationing, an action taken by lending institutions to limit or deny access to credit based on borrower's worthiness mainly due to lender imposed has both worked and not worked as it is mainly situation based. This study concentrated on this lender-imposed credit rationing where DFIs in Eswatini have adopted to assess SMEs application process. Despite the government's strong emphasis in its National Policy on SMEs that for Eswatini to meet

the challenges it faces in increasing the prosperity of the Swazi Nation, there is a need to increase entrepreneurial activity in the country through enhancement of the environment in which businesses are set up, established and endeavour to grow, needs to be conducive to enterprise. To this end KoE stressed on increased effort to channel funds to businesses from micro-finance institutions, private sources and from the commercial banking sector. There are still some SMEs that are struggling to survive through inability to access financial assistance 15 years after the launch of the policy.

Although DFIs worldwide, including Eswatini, adopt lender-imposed credit rationing where factors such as gender of the applicants, location of the business, interest rates, age of SME, loan amounts applied, collateral and loan term, their practical effects are mixed. In Eswatini, most of these factors are not important, as far as lending is concerned, which is in tandem with other researchers (Cressy and Toivanen,2001); Abor and Biekpe,2009); Odit and Gobardhum,2011); Aterido *et al*., 2013); Anthony *et al*., 2013) including those that criticised them as not scientifically proven to be working positively. There might be other hidden factors that impact access to lending, such as the magnitude of each variable. Others work better if they are concentrated towards the higher side, while others need to be concentrated towards the lower side. This may mean that their presence does not suggest that they are important.

5.6 Conclusion

Among other unforeseeable factors that are overlooked by government economic policy makers and planners when thinking of programs like giving incentives to business entities is the analysis of their characteristics. Politically, the government wish to help them for economic development and growth while DFIs have their own rules and regulations. The findings point to the fact that the policy formulation in Eswatini was cosmetic and was not meant to help SMEs. Basing on the results of the analysis, it is, therefore concluded that most of the loan applicants were in their early start-up stage hence not enough experience to handle business transactions that are necessary for their growth. SMEs (loan applicants) should make sure they confine their loan requests within their economic base as most applied amounts were beyond their collateral, which was risky to lending institutions to release their funds to someone whom they are not sure that he/she shall be able to repay. The results of the analysis also revealed that there is no bias in handling loan applications. Approvals were based on economic facts rather than political or personal in that the

decisions were uniformly affecting loan applicants. This is despite gender, location, loan terms, interest rates regimes and collateral. In general, SMEs in Eswatini face difficulties in accessing DFI services. It is an undisputable fact that DFIs in Eswatini are applying credit rationing in their loan processing. As stated by Angelini, Di Salvo and Ferri (1998), the constrained access to loans could have a negative impact on the growth of the SME sector, with serious implications on poverty and unemployment.

5.7 Recommendations

Though it is an undisputed fact that SMEs are the backbone of economic development, it is also undisputed that they face financial challenges for their smooth growth. Based on the results of the analysis, for the survival of SMEs in Eswatini the following recommendations are drawn:

1. Government economic policy makers should formulate policies that fit early start-up business entities that are struggling to survive but they are denied access to loans due to their age.
2. SMEs operators should be well informed of available policies of DFIs when they seek financial help so that they should not request what is beyond their economic base as this discourages DFIs to practically assist them.
3. Encouraging SMEs to adopt village banking system that can help them locally as an alternative to financial assistance mechanism. These have lighter financial rules compared to those of DFIs and financial institutions.
4. The dependent variable in this study was defined based on the demand-side response that only reflects the views of the borrowers. Therefore, future researchers on this topic in Eswatini should consider using the supply-side so that views of lenders are heard. Adding more explanatory variables include employment size, type of business, and many more SMEs characterises and test the impact of the magnitude of these variables to assess if they might add any value to the hindrances to loan access.

5.8 Suggestion for future research

The principles and data used in this dissertation could be extended for testing the effects of educational level, marital status, type of SME and credit history of borrowers in accessing loans from Eswatini DFIs. As secondary data used in this study were requested from CBE that had several limitation including protection of some of the SME owners' information, it

would be ideal to get some of this information and any other that can have an influence on loan acquisition from borrowers themselves through an in-depth cross-sectional survey.

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